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SUMMARIES OF STUDIES IN AGRICULTURAL EDUCATION, AN ANNOTATED BIBLIOGRAPHY OF STUDIES IN AGRICULTURAL EDUCATION WITH CLASSIFIED SUBJECT INDEX. SUPPLEMENT NO. 15, VOCATIONAL DIVISION BULLETIN NO. 300, AGRICULTURAL SERIES NO. 78.
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THE 100 STUDIES SUMMARIZED IN THIS SUPPLEMENT BRING TO 3,104 THE STUDIES REPORTED IN THIS SERIES SINCE 1935. THE 18 DOCTORAL DISSERTATIONS, 18 STAFF STUDIES, AND 64 MASTER'S STUDIES EACH CONTAINING A BRIEF DESCRIPTION OF PURPOSE, METHOD, AND FINDINGS, ARE ARRANGED ALPHABETICALLY BY AUTHOR AND ARE INDEXED BY NUMBER UNDER (1) ADMINISTRATION, (2) ADULT FARMER CLASSES, (3) ADVISORY COUNCILS, (4) COURSE OF STUDY AND CURRICULUM, (5) FARM SHOP AND FARM MECHANICS, (6) FOLLOWUP OF GRADUATES, (7) FOREIGN SCHOOLS AND PROGRAMS, (8) FUTURE FARMERS OF AMERICA, (9) GUIDANCE AND ORIENTATION, (10) HISTORY, PHILOSOPHY, AND OBJECTIVES, (11) MEASUREMENT AND EVALUATION, (12) MULTIPLE-TEACHER DEPARTMENTS, (13) PLACEMENT AND ESTABLISHMENT, (14) PROCEDURES AND MATERIALS IN TEACHING, (15) PUBLIC RELATIONS, (16) SAFETY PRACTICES, (17) SUPERVISED FARMING, (18) TEACHER EDUCATION, (19) TEACHING FACILITIES, (20) TEACHING MATERIALS, AND (21) YOUNG FARMER INSTRUCTION. THIS DOCUMENT IS AVAILABLE FOR 25 CENTS FROM SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402. (JM)

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An annotated bibliography of studies
in agricultural education with
classified subject index

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Supplement No. 15 to Vocational Division Bulletin No. 180, Prepared by the Research Committee of the Agricultural Education Section, American Vocational Association

Vocational Division
Bulletin No. 300

Agricultural
Series No. 78

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Abraham Ribicoff, *Secretary*

OFFICE OF EDUCATION
Sterling M. McMurrin, *Commissioner*

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Foreword

THIS ANNOTATED BIBLIOGRAPHY of studies in agricultural education is the 15th supplement to Vocational Division Bulletin No. 180, "Summaries of Studies in Agricultural Education," issued by the Office of Education in 1935. The Bulletin and its supplements have made summaries of research in this field readily accessible to agricultural educators and others. The project was initiated, and has been continued, by a committee of the American Vocational Association in cooperation with the Agricultural Education Branch of the Office of Education.

Research has been a vital segment of the program of vocational education in agriculture and is becoming increasingly important. It is hoped that the studies summarized in this publication will be used for continued improvement of the program and will stimulate additional investigations. Persons desiring more detail on a particular study may wish to consult the original manuscript or publication available at the source indicated in the summary.

WALTER M. ARNOLD
Assistant Commissioner
for Vocational and Technical Education.

Summaries of Studies in Agricultural Education

Introductory Statement

CAREFULLY SELECTED SUMMARIES of research studies pertaining to the field of vocational education in agriculture completed and reported during the 1960–61 academic year or completed earlier and not included in previous supplements are presented in this supplement, No. 15, to Bulletin No. 180, *Summaries of Studies in Agricultural Education*. The 100 studies included herein bring to 3,104 the studies reported in this series which began in 1935 with the publication of Bulletin No. 180. The influence of this wealth of research upon a rapidly expanding program of agricultural education has been intensified through the medium of these annotated summaries which have made the more significant research findings readily available to interested workers. As the reader follows these supplements, he may readily detect a growing dedication to an increasingly more scientific attempt to bring to bear the best efforts of intellectual inquiry in the search for solutions to problems in this field. A recognition of a strengthening of research techniques in graduate studies reported in the immediately preceding supplement may be noted as continuing in this supplement but here coupled with a similar trend in staff studies not made for graduate school credit. This is an encouraging trend which, if continued, should profoundly affect the direction this educational program will likely take in the ensuing years.

The 100 studies in this supplement represent the smallest number of studies reported during a year's time in recent supplements. Of these, 18 were doctoral dissertations—9 for the Ph. D. and 9 for the D. Ed. Another 18 were professional projects planned, conducted, and reported by members of the supervisory and teacher education staffs in the several States. The remaining 64 studies were of the thesis or problem-study type submitted in partial fulfillment of the requirements for the advanced degrees of M.A., M.S., M. Ed., or M. of Agr. Ed.

The Committee on Research elected from the agricultural section of the American Vocational Association is responsible for assembling and classifying these reports. The committee followed the policy of including only those summaries of studies related to agricultural education which met the criteria adopted by the American Vocational Association, which were directed or supervised by professional workers in this field, and for which the complete report was reported to be available on a loan basis from the institution or department library. Brevity has been a major consideration in reporting summaries in this publication. In assembling and editing reports there has been no intent to allot space to any study on the basis of its relative value.

The members of the committee assumed responsibility for collecting the summaries of studies completed in their respective geographical regions. This was possible only through the cooperation of the various agricultural education staff members throughout the country who were asked to assemble and forward summaries of studies completed in their own institutions. The chairman accepts responsibility for the final editing and classification of the summaries of studies. The specialist for research and teacher training in the Agricultural Education Branch, Division of Vocational and Technical Education, worked with the chairman in preparing the manuscript for publication.

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of the
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Summaries of New Studies, 1960-61

3005. **Aaser, Marin W.** Factors Influencing Success of FFA Chapters in North Dakota. Master's report, M. Ed., 1960, Colorado State University. 98 p. Library, Colorado State University, Fort Collins.

Purpose.—To determine what factors are associated with successful FFA chapters in North Dakota and to develop a list of factors known to be employed by successful chapters in North Dakota.

Method.—The data for this study were solicited by means of a questionnaire directed to 36 advisers of successful FFA chapters in North Dakota during the 1958-59 FFA year. The tabulations were based on 33 usable questionnaires returned. Successful chapters were those which received either a gold, silver, or bronze rating in the chapter award contest.

Findings.—According to the ratings as given by the 33 advisers in award-winning FFA chapters in North Dakota, the following factors received the highest rankings: (1) Supervised farming program record books; (2) cooperation with clean grain program; (3) FFA week activities; (4) officer leadership training programs; (5) adequate financing; (6) training in parliamentary procedure; (7) experience in conducting meetings; (8) require passing grades for office and FFA participation; and (9) hold parent and son banquets. The following time was spent on these activities annually: 77.8, 13.8, 16.2, 16.1, 52.0, 29.0, 3.6, 21.2, and 13.1 hours respectively.

The factors receiving the lowest ranking were: (1) Awards for developing farming program; (2) news items for the North Dakota Farmer magazine; (3) charitable drives; (4) awards for leadership; (5) safeguard funds; (6) awards to encourage effective meetings; (7) promote scholarships; (8) participation in state and national music events; and (9) roadside markers. The following time was spent annually on the foregoing items: 73.2, 3.7, 4.0, 8.7, 8.6, 10.1, 2.6, 4.6, and 7.1 hours, respectively.

3006. **Adkerson, Herman Hale.** What Is the Future of Vocational Agriculture in the Eyes of Southern Illinois Administrators? Thesis, M.S., 1960, University of Tennessee. 65 p. Library, University of Tennessee, Knoxville.

Purpose.—To show what position vocational agriculture had in the curriculum of southern Illinois high schools and to present the opinions of administrators as to the place it should hold.

Method.—To obtain the desired information for this objective, a questionnaire was prepared and mailed to 171 administrators. This phase of the study was based on the replies of the 113 administrators who responded.

Findings.—Eighty-five percent of the schools offered vocational agriculture because of a definite need and would broaden the program to include agricultural occupations. Fifty percent of the schools required farm background for the vocational agricultural teacher. Sixty-six percent used facilities for supervised farming program as the major criterion for enrolling in vocational agriculture. Eighty-two percent offered a 4-year course of study. Seventy-five percent of teachers performed nonagricultural duties, but 57 percent of administrators thought this a mistake. Forty-seven percent of departments were maintained by local funds and 40 percent by local, State, and Federal funds. Eighty-three percent paid salaries of vocational agriculture teachers with local, State and Federal funds, but only 57 percent of administrators thought Federal funds should be used. Fifty-eight percent paid teachers' travel with local, State and Federal funds, with only 8 percent of the administrators disagreeing.

Seventy-eight percent had FFA as a regular part of vocational agriculture; 70 percent of all administrators agreed with this policy. Over 50 percent of vocational agricultural teachers taught 40 or more boys, one adult and one young farmer class. Most administrators thought 40 boys and one adult class a full load. Fifty percent visited boys three or more times per year. Eighty-six percent of administrators evaluated program by what students were able to do. Seventy-five percent of the administrators did not think industry would force vocational agriculture out of *their* school.

3007. **Allgood, Earl V.** A Study of Selected Aspects of the Technical Training of Teachers in Vocational Agriculture. Thesis, M.S., 1961, Virginia State College. 82 p. Library, Virginia State College, Petersburg.

Purpose.—To determine the extent to which teachers of vocational agriculture in the State of Virginia believe they possess certain technical competencies in agriculture.

Method.—Technical competencies in agriculture were classified according to six areas. All teachers of vocational agriculture in the State of Virginia indicated whether or not each competency listed was needed in their work and the extent to which each competency had been developed by the teacher reporting.

Findings.—The need for possessing a given competency was directly related to the character of farming in a particular community.

Academic excellence rather than rich farming experience was emphasized in securing enrollees for the department of agricultural education.

Listed in order of greatest needs by teachers were competencies in the following: Home garden, swine, pasture, poultry, forestry, dairy cattle, hay, beef cattle, soybeans, white potatoes, sweetpotatoes, small grains, large fruit, small fruit, and tomato enterprises.

Teachers, in general, reported having engaged in extensive technical training activities after graduation from college.

A limited number of teachers, in spite of their expressed needs, reported they had not developed the necessary competencies listed.

3008. **Anderson, Glenn Myron.** A Reference Unit for Teaching Cooperatives. Colloquium paper, M.A., 1960, University of Minnesota. 55 p. Library, Department of Agricultural Education, University of Minnesota, St. Paul.

Purpose.—To develop a unit adapted to the needs of the vocational agriculture student.

Method.—The writer in cooperation with the Cooperative League of the USA developed a unit on cooperatives. This unit was submitted to a selected list of key educators, cooperative leaders, and young farmers for review. The booklet then was edited and published by the League. The writer conducted two surveys of people in agricultural education, including State supervisors of agricultural education and vocational agriculture teachers. The surveys provided information regarding approach to the question of teaching cooperative business and rating of material being used compared to the proposed unit.

Findings.—Of the nine State supervisors of agricultural education surveyed, five provide no help to the teachers in the area of cooperative business, one provides material in cooperation with other agencies, three provide lists of source material. Eight do not promote cooperative business education, one assists in the promotion and in this instance a State law requires that this type of education be offered. None of the supervisors knew of any research having been done about teaching cooperative principles. Five supervisors believed a unit reference would promote more instruction about cooperatives, two said it would possibly help, and two said it would help. Seven of the supervisors reported they believed instruction about cooperative business was worthwhile, the other two gave a qualified "yes."

Based upon a reply from 21 schools in Minnesota, Wisconsin, and Iowa having a high school enrollment of 80 students or more, 100 percent stated that cooperative business was taught. Fifty-one percent teach it as a separate unit, 49 percent teach it as a part of marketing, and 2 teachers noted they taught it as a part of agricultural economics.

Eighty-two percent of the teachers reported they believed students prefer to use a unit reference. Sixty-two percent of the teachers, including those who did not presently use the booklet, indicated they would prefer to use a unit reference. The booklet *Your Off the Farm Business*, developed by this writer in cooperation with the Cooperative League of the USA, was ranged higher as a teaching aid than any other cooperative material available.

The writer concludes that careful study of teacher and student needs and available literature should be made by those interested in cooperative education before producing any student material whether a booklet, film strip, chart, or movie.

3009. **Annis, William H.** The Needs of Dairy Farmers in Agricultural Mechanics in Selected Dairy Counties of New York. Thesis, Ed. D., 1961, Cornell University. 189 p. Library, Cornell University, Ithaca.

Purpose.—(1) To test the hypothesis that there were no statistical differences among selected dairy counties in the manipulative jobs performed by sampled dairy farmers; (2) to determine the manipulative jobs performed in agricultural meshanics on dairy farms by the owner or regularly employed help; (3) to ascertain those manipulative jobs performed by servicemen; (4) to determine the value to the farmer of knowing how to perform the jobs; and (5) to develop a suggested training program of manipulative abilities in agricultural mechanics for students of vocational agriculture in the sampled dairy areas of New York.

Method.—The mailed questionnaire technique was used to secure the data from 182 of 236 dairy farmers in 6 counties of New York having over 1,000 dairy farms per county. The questionnaire of 148 manipulative jobs was developed from readings, personal knowledge, and consultation with agricultural education and agricultural engineering personnel, as well as teachers of agriculture. A pretest was conducted with selected farmers in two counties. The farmers were asked to check the appropriate column to indicate: (1) The jobs performed by themselves or regularly hired men; (2) the value of these jobs to present and prospective farmers; (3) those jobs performed by servicemen; and (4) those jobs which the servicemen performed which the farmer felt should be done by farm personnel. The samples from the counties were compared by use of the *chi*-square technique to determine the statistical differences which existed among the counties regarding the jobs performed by the farmers or servicemen.

Twenty-four teachers of agriculture were asked to respond to the same 148 manipulative jobs to ascertain when they felt these jobs should be offered in the training program.

Findings.—There were no significant differences among the counties relative to the manipulative jobs performed by dairy farmers when compared by using the *chi*-square technique. On the basis of these findings, it was concluded that a training program of manipulative jobs in agricultural mechanics for the sampled dairy areas could be developed.

The areas of agricultural mechanics ranked in order of importance to farmers: (1) Farm machinery; (2) farm power; (3) farm shop; (4) farm buildings and conveniences; (5) electricity; and (6) soil and water management. The farmers normally performed the service and maintenance functions in the area of farm machinery as well as the adjustments on the machines. They generally had servicemen perform the overhaul functions.

Farmers performed the jobs which had high labor requirements in the area of farm buildings, with servicemen performing the installation functions in this area. The farmers performed most of the manipulative jobs in the area of farm shop themselves but rated welding low in importance.

A training program was recommended based upon the number of farmers who performed the job, its value to farmers, and the number of farmers who indicated they felt they themselves should be performing jobs which they now hired servicemen to do. These jobs were placed in the training program according to the year recommended by a concensus of the opinions of the sampled teachers of agriculture.

3010. Bass, B. C. A Study To Determine Some of the Achievements of Students at Virginia Polytechnic Institute Who Studied Vocational Agriculture While in High School. Nonthesis study, 1961, Virginia Polytechnic Institute. 8 p. Department of Agricultural Education, Virginia Polytechnic Institute, Blacksburg.

Purpose.—To determine some of the achievements of students at Virginia Polytechnic Institute who completed 2 or more years of vocational agriculture while in high school.

Method.—Teachers of vocational agriculture in Virginia provided the names of students who were graduated from their respective high schools during the 10-year period 1948 through 1957 and who later attended Virginia Polytechnic Institute. The students were divided into two groups. A total of 222 individuals who had studied vocational agriculture 2 or more years while in high school constituted the vocational agriculture group. A total of 168 who had not enrolled in vocational agriculture while in high school constituted the nonvocational agriculture (control) group. Data relative to the college achievements of each individual were obtained from records at Virginia Polytechnic Institute.

Findings.—A significantly smaller proportion (11.26 percent compared to 17.16 percent) of the students who studied vocational agriculture in high school dropped out of college during or at the end of the first year after enrolling. A significantly larger proportion (75.68 percent compared to 65.08 percent) remained in college four academic years after enrolling than did the students who did not enroll in vocational agriculture while in high school.

The mean of the overall quality credit average earned by the students in the two groups in college slightly favored the vocational agriculture group (1.41 compared to 1.20), but this was not statistically significant.

A significantly larger proportion of the students in the vocational agriculture group failed two of the six required English courses than did the nonvocational agriculture group.

No significant differences were found between the academic achievements of the students in the two groups with respect to the proportion who successfully passed four of the six English courses and all courses in biology, chemistry, and mathematics.

3011. Beam, Homer Edwin. An Analysis of Socio-Economic Trends as an Aid to Program Planning in Vocational Agriculture in North Carolina. Thesis, Ed. D., 1960, University of North Carolina. 273 p. Library, University of North Carolina, Chapel Hill.

Purpose.—This study was concerned with an analysis of certain socio-economic trends as an aid to program planning in vocational agriculture in North Carolina. The study dealt specifically with identifying socio-economic trends; relating these trends to programs of vocational agriculture, with special emphasis on two program-planning characteristics; and designing a procedure which might help to insure that pertinent socio-economic trends would be integrated into the planning of these programs.

Method.—An extensive review was made of the literature related to socio-economic trends and programs of vocational agriculture in North Carolina. A total of 31 trends were identified which seemed to be closely related to those programs. These trends were analyzed to determine how they were related to programs of vocational agriculture, with special attention to their influence on the importance of local planning and flexibility as major program planning characteristics in effective programs of vocational agriculture in North Carolina.

Consideration was given in the study to only those trends which could be classified in one of five categories. The categories and the number of trends identified in each category were as follows: Population 5; agriculture, 9; education, 11; nonagricultural influences related to agriculture, 4; and levels of living, 2 trends.

Findings.—Many close relationships existed between the 31 trends and programs of vocational agriculture in North Carolina. The relationships identified appeared to support the central hypothesis in the study; namely, socio-economic trends are increasing the importance of local planning and flexibility as major program-planning characteristics in effective programs of vocational agriculture in North Carolina. A guide was developed which local school officials might use to insure that pertinent socio-economic trends are integrated into the planning of these programs.

3012. BENDER, RALPH EDWARD. What's Happening to Ohio's Vocational Agriculture Graduates. Nonthesis study, 1961, The Ohio State University. 8 p. Agriculture Library, The Ohio State University, Columbus.

Purpose.—To identify the extent to which graduates in vocational agriculture who were out of school 1 and 5 years were engaged in farming or related agricultural and nonagricultural occupations.

Method.—Data were secured from 108 schools, involving 1,335 graduates. The schools were selected at random from throughout Ohio and represent the State, both agriculturally and geographically.

Findings.—Two of every three graduates in vocational agriculture in Ohio were engaged in farming and farm-related occupations during their first year out of school. The number so engaged who were out of school 5 years was reduced slightly to approximately 60 percent. At each of these periods, approximately one out of four graduates was farming on a full-time basis. Nearly an equal number was farming part time. However, when out of school 5 years, fewer were thus engaged, indicating that in some instances part-time farming is an interim engagement, pending the location of other full-time employment.

These data, when compared with that of four previous surveys, justify the general conclusion that approximately 60 percent of the graduates out of school 5 years are engaged in farming or farm-related activity. There was a slight decrease in recent years in the percent engaged in farming, however, the total percent engaged in agriculture effort remained fairly stable throughout the years.

It was evident that graduates of vocational agriculture become engaged in many kinds of work. A large segment of these occupations requires aptitudes and ability in mechanics; many common types of employment involve working with people. There has been considerable variation concerning the employment of graduates depending upon their location in Ohio. Opportunities for employment in other than farming appeared to be an important factor. It was, likewise, found that there was an increasing trend in the number of boys attending colleges other than agriculture and a rather constant decrease during the last 5 years in the percentage of graduates in military service among those out of school 5 years.

3013. BENSON, LYLE FREDERICK. Development of a Teaching Guide for Crop Improvement and Seed Certification in Minnesota. Problem, M.A., 1960, University of Minnesota. 62 p. Library, Department of Agricultural Education, University of Minnesota, St. Paul.

Purpose.—To develop teaching units and a set of 53 colored 35-mm slides on crop improvement and seed certification in Minnesota.

Method.—The writer carried on research for information on the development, increasing, certification, and marketing of certified seeds. This information was collected from the Minnesota Crop Improvement Association, the University of Minnesota Agriculture Experiment Station, county crop improvement associations, and selected references. This data was organized into seven teaching units with stated objectvies, related information, references, and visual aids. A set of 35-mm colored slides was collected to help visualize the development of seed from breeder's seed to the marketing of certified seeds. These are made available to teachers of agriculture, and others through the Agriculture Film Library, University of Minnesota, St. Paul 1, Minn.

Findings.—The development of seven teaching units on crop improvement and seed certification, to be used in training present and future farmers, will give a greater appreciation of the value of certified seeds and how to produce certified seeds. One can readily appreciate where certified seeds are worth more money when he realizes the cost and great care that is essential in producing, storing, and processing of certified seeds. Seed merchandising and marketing along with a good educational program are needed to convince the crop producer that certified seed should command a premium because it is worth more.

Many teaching opportunities can be developed by carrying out the suggested activities to give a greater understanding and appreciation of certified seeds. Several audiovisual aids are suggested for use in connection with the seven teaching units. A set of 53 35-mm colored slides was developed by the author along with a syllabus to help summarize the problem of crop improvement and seed certification in Minnesota.

3014. BENTON, RALPH A. Factors Affecting the Employment Opportunities for Out-of-School Farm Boys in Sixteen Southern Illinois Counties; Implications for the Agricultural Education Program. Nonthesis study, 1960, Southern Illinois University. 32 p. Department of Agricultural Industries, Southern Illinois University, Carbondale.

Purpose.—To determine the factors which affected the employment opportunities for out-of-school farm boys, from 1954 to 1959, in 16 southern counties of Illinois.

Method.—Information was obtained by personal visits to county superintendents, principals, vocational agriculture instructors, and business firms; also from the 1954 and 1959 agricultural census, and the 1950 and 1960 census of population.

Findings.—One-fifth of the farms in the area were 50.0 acres or less in size. The average farm was 172.8 acres and the average value of land and buildings per acre was $125.62. The State average value per acre was $319.05. Over one-third of the farmers were part-time farmers working 100 or more days per year off their farms.

From 1954 to 1959, 873 boys had graduated in vocational agriculture. Of these, 56.7 percent had started farming; 26.0 percent began college; 12.7 percent had entered the armed forces, and 4.6 percent were doing other types of work.

These graduates, together with 288 dropouts, composed a group of which only 51.7 percent were still in the home community in 1959. Only one-third were in a young farmer or an adult farmer class.

One-half the boys enrolled in vocational agriculture during the 5-year period lived on full-time farms. Another third lived on part-time farms, while the remainder were town boys. Although the enrollment of boys in all high schools in the study showed a 3.4 percent increase from 1954 to 1959, there was at the same time a noticeable decrease in the vocational agriculture enrollment.

Of 150 different firms engaged in manufacturing or processing, only 42 hired any recently graduated high school seniors. They represented a small 2.7 percent of the entire labor force employed in 1959. Adult labor is a surplus resource in the area which lost 11.38 percent of its population from 1950 to 1960.

3015. BLACK, JOHN OLAR, JR. An Evaluation of Practices Used by South Carolina Farmers in Selecting Small Grains Planting Seed. Thesis, M.S., 1961, Clemson College. 115 p. Library, Clemson College, Clemson.

Purpose.—To determine the sources of small grain seed planted in three South Carolina counties; the extent to which seed were cleaned, treated, and analyzed; and the extent to which certified seed were used. Certain economic aspects of planting certified seed were also considered.

Method.—Teachers of agriculture and county agents in Anderson, Florence, and Orangeburg Counties collected 315 samples of seed oats, wheat, barley, and rye in the fall of 1959. Pertinent information on samples was recorded on an appropriate form when the samples were collected. All samples were analyzed by the South Carolina Department of Agriculture Seed Testing Laboratory to determine germination, purity, purity-limiting components, and information about purity-limiting components present in the samples. Yield data were computed on the samples grouped according to crop and classified according to certified and noncertified seed.

Findings.—Of all the samples 80 percent were of homegrown seed, 9 percent of seed obtained from neighbors, and 10 percent of seed purchased from seedsmen.

From the standpoint of quality, 43 percent of the seed samples, representing 37 percent of the acreage being planted, were too low in quality to be salable in South Carolina.

Certified seed in the study proved to be superior to noncertified seed in all aspects determining seed quality. Certified seed averaged 94.0 percent germination compared to 79.0 percent germination for noncertified seed, 99.30 percent purity compared to 96.23 percent purity for noncertified seed, and only 0.70 percent inert matter compared to 2.78 percent inert matter for noncertified seed. In addition, certified seed contained no weed seeds or other crop seeds compared to averages of 0.24 percent weed seeds and 0.75 percent other crop seeds in noncertified seed. Certified seed yielded, on the average, 11.5 more bushels of oats per acre, 4.4 more bushels of wheat per acre, 6.1 more bushels of barley per acre, and 1.9 more bushels of rye per acre than did noncertified seed of these crops.

This study (1) points up the need for changes in the South Carolina seed law with provisions for increased enforcement to improve the quality of noncertified seed considered salable in this State; (2) indicates the great need for an improved educational program to promote the use of certified seed; (3) provides information usable in preparing educational materials that could be used in either classroom instruction or field demonstrations; (4) presents several areas in which further study would contribute greatly to agriculture in South Carolina.

3016. Bollwahn, Lester P. A Self Evaluation of Abilities in Farm Mechanics by Short Course Students in Agricultural Colleges With Implications for Instructional Programs. Thesis, Ed. D., 1961, Michigan State University. 124 p. Library, Michigan State University, East Lansing.

Purpose.—(1) To determine the degree in which farm mechanics is used by the farmer; (2) to determine the degree of skill in farm mechanics abilities possessed by students entering agricultural short courses in colleges; (3) to determine what abilities need further instruction at the short course or young farmer level; and (4) to compare the skill of Michigan students in farm mechanics with the skill of students in other States, thus to determine the need for changes in the Michigan farm mechanics program in vocational agriculture.

Method.—One hundred abilities in farm mechanics were evaluated by 406 short-course students who were enrolled in the first course in farm mechanics in seven midwestern States. They were surveyed by means of a questionnaire. The abilities were evaluated in terms of how often they were used on the home farm, who performed them, where they were learned, and how well the respondents felt they could perform them on their home farm. The respondents also indicated on the questionnaire some background information about their farming and educational experience. The data were analyzed by State, instructional area, and individual ability.

Findings.—(1) Of the 100 abilities listed on the questionnaire, 35 were performed less than twice per year and 20 were performed more than 5 times a year on the farm; (2) abilities more frequently performed on the farm were the ones that young farmers could do with the greatest skill; (3) respondents indicated that a combination of learning at home and at high school produced the highest level of achievement; (4) respondents perform more abilities on the home farm than does the respondents' family; (5) of the 100 abilities listed on the questionnaire, only 18 could be performed adequately on the farm; one was performed unsatisfactorily; remainder performed in a marginal manpower; (6) fifty-two abilities were found to be important enough for the farmer to perform on the farm. Of these, 35 needed additional instruction at the young farmer level; (7) specialized courses in shop improved the achievement of the respondents in the farm mechanics instructional area most closely related to it; (8) when respondents had had 4 years of vocational agriculture, those from Michigan had significantly less skill than those from other States in all instructional areas but soil and water management.

3017. Borkovec, Roman F. The Methods and Resources That Wisconsin Vocational Agriculture Teachers Use To Teach Farm Management. Thesis, M.S., 1961, University of Wisconsin. 96 p. Library, University of Wisconsin, Madison.

Purpose.—The primary purpose was to determine the methods and resources used by vocational agriculture teachers in teaching farm management to high school students. Four specific objectives were listed as secondary purposes.

Method.—A six-page questionnaire was mailed to 53 vocational agriculture teachers with 2 or more years of teaching experience, and to 3 farm management specialists at the University of Wisconsin. A random sampling method was used with 49 of the 53 teachers responding and 47 of the teacher responses used in the study. This represented over 20 percent of the total teacher population with over 2 years teaching experience.

Findings.—Of the vocational agriculture teachers 72 percent indicated farm management was interesting to teach and easier to teach high school students rather than young and adult farmer classes. The average teacher in the study spent 173 days teaching farm management.

Of the vocational agriculture teachers, 46 percent indicated that students were interested in farm management, while 40 percent indicated students did not find farm management interesting.

Lecturing was the most popular method used in teaching farm management by both teachers and specialists. However, vocational agriculture teachers used reports, field trips, resource people, visual aids, and the shop more than did farm management specialists who indicated they used the laboratory farm and workbook to a greater extent.

The resources most useful in farm management teaching were found to be the teachers' farm background, bulletins, textbooks, and farm magazines. Out of the possible 11 textbooks listed, more teachers used *Farm Management Handbook*, by I. F. Hall and W. P. Mortenson, as a textbook. Thirty-two departments were using this book as a text and 5 departments were using it as a reference.

Thirty percent of the teachers stated the biggest problem in farm management teaching was motivation and keeping the students interested in farm management. Twenty-six percent indicated a need for up-to-date material, while 19 percent indicated more time was needed for field trips.

3018. Brown, Alan R. Leadership Activities of Former *Chapter* and *State Farmers* in the Iowa Association, Future Farmers of America. Thesis, M.S., 1960, Iowa State University of Science and Technology. 89 p. Library, Iowa State University of Science and Technology, Ames.

Purpose.—To determine the differences existing between the leadership activities of former Future Farmers who received the State Farmer degree and their classmates who received only the Chapter Farmer degree and to determine the leadership accomplishments of the former members in comparison with the aims, purposes, and requirements of vocational agriculture and the Future Farmers of America.

Method.—Five Iowa Future Farmers who had received the State Farmer degree for each year from 1929 to 1953, inclusive, were selected. A Chapter Farmer classmate for each State Farmer was also selected. One hundred pairs were completed.

Information was collected about the home and farm at the time of the member's graduation from high school. Postgraduation activities were investigated. Leadership activities for the past 12 months were compared.

Findings.—Former State Farmers were significantly higher than the Chapter Farmers in the following: (1) Larger home farms; (2) more years vocational agriculture; (3) more years Future Farmers membership; (4) larger percentage attended college; (5) larger percentage of college students enrolled in agricultural curriculum; (6) higher value placed on Future Farmer and vocational agriculture experiences for personal, family and community living. State Farmers had significantly more leadership participation in business and industry, total occupations, political, school, community service, religious and recreational activities. They also had a significantly higher mean for agricultural, business and industry, and political leadership activities.

Although not significantly, the former State Farmers rated higher in the following: (1) Parental ownership of farm; (2) fewer older brothers; (3) fewer brothers and sisters; (4) greater percentage agriculturally employed; (5) older age at marrying; (6) number of leadership activities related to agriculture and lodges; (7) higher mean for leadership in total occupations, religious, school, and lodge activities.

The former Chapter Farmers had significantly more on-job and on-the-farm training and a higher mean for recreational leadership. No significant difference was found in the military rank attained.

It was concluded that the leadership aims and purposes were being fulfilled. The State Farmers were required to achieve more of the aims and goals. The study revealed that after high school graduation the former State Farmers consistently rated higher than their Chapter Farmer classmates in leadership activities.

3019. Coffman, Hugh Dixon. Problems of Selected Youth in the Warren School District, Washington County, Ohio. Thesis, M.A., 1960, The Ohio State University. 70 p. Library, The Ohio State University, Columbus.

Purpose.—To identify some of the personal problems of the juniors and seniors of the Warren School District (Ohio), and to suggest ways that the school and community could aid these youth in solving their personal problems.

Method.—A 300-personal-problem checklist for rural youth was administered to 67 boys and 72 girls who were to mark the problems of concern to them.

Findings.—The 139 students checked a total of 5,339 problem items. The boys checked an average of 39 items compared to 37 for the girls. The items checked were well distributed throughout the 10 areas. Only 10 of the 300 problem items did not receive a single check. The following shows the rank according to the number of items marked and the number of items checked in each area: (1) Personal temperament, 878; (2) education, 725; (3) social and recreational, 596; (4) relationship with people, 520; (5) health and physical, 508; (6) morals and religion, 467; (7) courtship, sex and marriage, 444; (8) home and family, 433; (9) vocation and economic, 428; and (10) citizenship, 340.

As indicated by the items checked, the girls were more concerned with health and physical items and problems dealing with the home and family than were the boys. In contrast, the boys were concerned more with problems of a vocational and economical nature.

When asked, "Would you like to have some of the problems discussed in a meeting of young people?", 77 percent of the 128 students reporting answered, "Yes." Of these students, 72 percent indicated that they wanted to talk over these problems with someone who is interested in young people.

The results of this study indicate that young people have many personal problems. They desire and need to discuss these problems with parents, teachers, and other youth leaders. The use of the problem checklist appears to be a valuable aid in planning the high school curriculum.

3020. Cordes, Arnold B. A Study of the Career Opportunities in Agriculture, the Development of a Resource Unit and

a Teaching Unit on the Topic of *Choosing a Career in Modern Agriculture*. Seminar Report, M.S., 1961, University of Wisconsin. 122 p. Department of Agricultural and Extension Education, University of Wisconsin, Madison.

Purpose.—(1) To survey the occupational opportunities in the broad field of agriculture; (2) to prepare a resource unit with a list of aids for use by an instructor in vocational agriculture in preparing his teaching unit on the topic of *Choosing A Career In Modern Agriculture*; and (3) to prepare teaching units of instruction based on the resource unit.

Method.—Occupational materials relating to careers in agriculture were obtained from the departments of agricultural education of the State universities in the United States. Research readings in vocational guidance provided some information. Additional insight was gained by previewing available films on the topic of agricultural occupations and vocational guidance programs.

Findings.—Agriculture is going through a period of phenomenal change as evidenced by a great reduction in the number of farms and the number of people working on the farms; science and technology increased farm production without materially increasing the size of the total agricultural plant. This change has altered the qualifications for the farm operator of the future and necessitates a more thorough vocational study by those who consider farming as a possible choice of vocation.

It was found that there were 21.7 million people working somewhere in agriculture. Of that group, 10 million were in distributive occupations, 6 million were producing for or servicing farmers, and 5.7 million were in farming. Of the latter group, 4.7 million were males, of which 2.7 million were self-employed, nearly .5 million were unpaid family laborers, and 1.5 million were wage earners.

To maintain the number employed in farming on the 1.5 million commercial farms grossing $5,000 or more income per year, 25,000 farm operator replacements are needed annually. About 27,000 farm wage earners are needed annually to maintain the work force of 1.5 million employed.

To maintain an agriculturally trained work force of 6 million currently employed in producing and servicing for farmers, 60,000 would be needed, considering a conservative 1 percent replacement rate.

The land-grant colleges and universities place 7,000 annually in professional vocations in agriculture. The total of these groups cited is 119,000 persons needed annually.

There are only 70,000 graduated annually from the high school vocational agriculture course to fulfill the needs of the agricultural labor market.

A promising opportunity exists, therefore, for farm boys trained through high school vocational agriculture for courses in farming, off-farm occupations related to agriculture, and professional work in agriculture.

The instructor in vocational agriculture has an excellent opportunity and a responsibility to integrate classroom teaching with vocational preparation, and to provide counsel and guidance to students who inquire about the existent opportunities within the agricultural vocation.

3021. **Davis, Alton Ray.** An Analysis of Selected Factors Associated With Level of Performance in Farming. Problem option, M. of Ag. Ed., 1961, North Carolina State College. 71 p. Library, North Carolina State College, Raleigh.

Purpose.—To secure and analyze data which might be used as a basis for developing more effective programs of education in vocational agriculture in the Bladenboro School District. More specifically, the purposes were (1) to relate seven selected socioeconomic factors: age, education, tenure, size of farming operation, level of living, communications, and social participation to level of performance in farming; (2) to compare five Agricultural Stabilization and Conservation communities in regard to level of performance in farming and in regard to the seven selected socioeconomic factors; (3) to determine the extent to which various channels of communications were used by farmers in obtaining agricultural information.

Method.—A sample of 105 farmers was selected at random from the total group of white farmers 16 years of age or older in five communities within the Bladenboro School District. The 105 farmers were interviewed to obtain the data used in the study.

Findings.—The following were positively associated with the adoption of recommended farm practices: (1) Youthfulness of farmers; (2) their formal education; (3) the number of acres of cultivated land they operated; (4) the size of their tobacco enterprise; (5) the possession of certain farm and home improvement items; (6) certain items of communication; and (7) the extent to which they and their families participated in organized group activity directly or indirectly related to agriculture.

There were considerable differences among the five communities in: (1) The level of performance in farming, and (2) the seven selected socio-economic factors. Communities I and E were found to be low-level-of-performance communities when compared to communities H, J, and K.

Other farmers were the most widely used single source of farm information. Mass media were also a popular source of farm information for a majority of farmers. Direct contacts with professional sources of farm information, with the exception of the A.S.C. Manager, were infrequent by a majority of the farmers. Salesmen and dealers were also rated low by a majority of the farmers as a source of agricultural information.

3022. Davis, Don Albert. A Study of the Farming Status and Educational Needs of the Out-of-School Young Farmers in the Rockwell City (Iowa) Community School District. Thesis, M.S., 1960, South Dakota State College of Agriculture and Mechanic Arts. 50 p. Department of Education, South Dakota State College, Brookings.

Purpose.—The primary purpose was to gain factual information and data that would aid the teacher of vocational agriculture in starting a program of instruction for the out-of-school youth living on farms in the local school district. Three secondary purposes were listed: (1) To determine the educational needs of those studied; (2) to ascertain the interest in attending meetings; and (3) to determine the number and kinds of approved practices that were being carried out on the farms.

Method.—The method of research was the normative survey type of research using the interview technique. A random sampling of the local community was taken of the farm residents. Thirty young farmers were interviewed as they were within the age group desired.

Findings.—The mean age of those studied was 25.2 years. Over one-half of those studied had reached the renter-operator stage on the agricultural ladder. The average size of farm was 217.5 acres with grain crops being the largest single enterprise.

Of those interviewed, 83 percent indicated some degree of interest in attending meetings; 92 percent indicated a preference for evening classes.

The study indicated that the most desired subject matter areas were as follows: Corn production, marketing farm products, soybean production, swine production, weed control, and soil conservation. These areas were desired by over 70 percent of the respondents.

The majority of those studied indicated they were satisfied with the occupation of farming. Only 20 percent indicated an interest in other occupations. Nearly all of those responding indicated that they were carrying out some approved practice, but 67 of the practices listed were indicated as needed by most of the respondents.

3023. Dean, Darl T. Determining the Need for Vocational Education in Northwestern Schools. Field service study, M.E., 1960, The Ohio State University. 23 p. Library, The Ohio State University, Columbus.

Purpose.—To determine the need for any additional vocational education courses for the boys of Northwestern High School, Clark County. Vocational agriculture was the only vocational offering at the time of this study.

Method.—All the male graduates of Northwestern High School during the 3-year period 1957–59 were surveyed and classified to determine their present occupation. The present high school male student's parents were then surveyed and classified as to their occupation. Finally the occupational plans of the present high school male students were classified as a result of a questionnaire designed to determine their interests in different occupations.

Findings.—About 25 percent of the male graduates during the 1957–59 years were enrolled in college and about 22 percent of the graduates during the same period went directly into shopwork. Farming and related agricultural occupations constituted about 12 percent of the graduates. Twenty percent of the present male students' parents were engaged as industrial workers and 12 percent in farming.

About 40 percent of the present high school male students planned to attend college and another 22 percent were not certain at that time about attending college. About 40 percent planned to go directly into an occupation without any additional preparation beyond high school. Fourteen percent of them listed farming as their first-choice occupation.

About 80 percent of all male high school students indicated a desire for some vocational training in high school. Over 50 percent of the students listed vocational training in mechanics and agriculture as their first choice.

It was concluded that a program of vocational agriculture should be continued and vocational trade and industrial education should be added to the present high school curriculum.

3024. Dewitt, Melvin L. Study of the Methods of Teaching Livestock Health in Vocational Agriculture Classes in Idaho and of Their Importance. Thesis, M.S., 1961, University of Idaho. 41 p. Department of Agricultural Education, University of Idaho, Moscow.

Purpose.—The major purpose of this study was to investigate the methods and importance of teaching animal health in vocational agriculture classes to determine how extensively veterinary science should be included in the curriculum of vocational agriculture. In presenting this study an attempt was made to evaluate the opinions of 50 vocational agriculture teachers and 21 practicing veterinarians in the State of Idaho.

Method.—A questionnaire was mailed to 78 vocational agriculture instructors and 36 veterinarians in the State of Idaho. A total of 50 questionnaires were returned from the vocational agriculture teachers and 21 questionnaires were returned from the veterinarians. The information thus secured was summarized according to four geographical areas in Idaho.

Findings.—The average number of hours spent teaching animal health in all classes was 25.32 hours.

The three most preferred methods of teaching livestock health are films, field trips, and book assignments.

The vocational agriculture instructors are less aware of livestock losses due to diseases and parasites than are the veterinarians.

Too many vocational agriculture teachers are diagnosing and recommending treatment for ailing livestock.

More course work in the field of veterinary science should be taken by prospective agriculture education majors.

More teaching aids relating to livestock health are needed from the University of Idaho.

Too few teachers request assistance from local veterinarians in planning instruction in animal health.

Recommendations.—

1. More effort should be made by vocational agriculture teachers to determine what diseases and parasites are important in the local area.
2. Greater effort should be made by the vocational agriculture teacher in formulating a course of study which would emphasize the importance of livestock health.
3. The teacher of vocational agriculture should be very cautious about diagnosing and recommending treatment for ailing livestock.
4. The teacher of vocational agriculture should use the resources of the local veterinarian to help plan his livestock health instruction.
5. There should be an advisory group formed in the State of Idaho, composed of practicing veterinarians and vocational agriculture instructors, which could aid in keeping the vocational agriculture teachers informed of the livestock health problems of the State and local communities.

3025. DILLNER, FRED DALE. Appraisal of Methods of On-Farm Instruction of Young Adult Farmers in South Central Pennsylvania. Paper, M. Ed., 1961, The Pennsylvania State University. 40 p. Library, The Pennsylvania State University, University Park.

Purpose.—To appraise decisionmaking, skill, and service visits as major methods of on-farm instruction of young adult farmers.

Method.—Eighty-three young adult farmers enrolled in classes in five schools in south-central Pennsylvania were interviewed. The schools have two-teacher departments of vocational agriculture. One or both of the teachers have daytime school hours assigned to on-farm instruction of young adult farmers. Relationships of characteristics of the men and their farms to the number and length of the three types of on-farm instruction were studied. Student judgment of the effectiveness of on-farm instruction in five areas of the farm business was obtained.

Findings.—The average number of visits primarily for decisionmaking instruction was 5.8 per man per year. The average for skill teaching was 1.0 visits and 0.8 for service visits. Decisionmaking visits averaged 1.6 hours, skill visits 1.4 hours, and service visits 1.3 hours of actual on-farm teacher time. By seasons, the number of visits per man averaged: Fall, 2.1; winter, 1.8; spring, 2.3; and summer, 1.5.

Number of on-farm instruction visits per man per year by 5-year age groups from 20–24 to 35–39 years averaged 6.8, 7.2, 8.5, and 9.2. Total hours per man per year for the same age groups were 8.8, 8.6, 9.4, and 11.0. The 15 men who were 40 years of age and older averaged 5.1 visits and 7.7 hours. Data for farming status, milk produced per farm, and years in young adult farmer classes showed differences that were related to those for age.

On a five-point scale the students rated on-farm instruction in farm management 4.1, soil fertility and conservation 3.5, crop production 3.9, dairy and other livestock 4.1, and farm mechanization 3.5. Decisionmaking instruction was rated higher than skill teaching or service visits on a checklist of desirable teacher practices (ways and means) when applied to a visit of each type.

3026. DUTROW, WARREN RALPH. Effects of the Sears Roebuck Foundation Dairy Program in Snyder, Union, and Northumberland Counties in Pennsylvania. Paper, M. Ed., 1961, The Pennsylvania State University. 47 p. Library, The Pennsylvania State University, University Park.

Purpose.—(1) To compare the growth rate of a group of Sears Roebuck Foundation heifers with the standard for the Holstein breed; (2) to correlate height at the withers and heart girth with milk production; (3) to test significance of the average difference between the milk production of the Sears animals and that of the herds in which they were raised; (4) to determine the need for and cost of an insurance program; (5) to report the status of fulfillment of the Sears contracts and to determine the occupational status of the vocational agriculture graduates who received Sears animals.

Method.—Data schedules were given to the teachers in the eight schools involved to be completed by the 94 boys who had received Sears Roebuck Foundation animals since the program started in 1949; 88 percent replied. Milk production records were converted to

305-day 2X mature equivalent basis. The data were analyzed with the use of product-moment correlation and the t-test.

Findings.—The average milk production of the Sears Roebuck Foundation dairy animals was 12,200 pounds while the herds in which these animals were placed had an average production of 10,500 pounds. The difference was significant at the 0.05 level.

No significant difference was found between the rate of growth of the Sears animals and the standard for the Holstein breed. The rate of growth of the Sears animals for wither height was slightly above the standard at all ages and the heart girth was above at all ages, except at 8 and 27 months. Correlations computed for heart girth and wither height measurements with milk production were not significant. Correlation for heart girth was highest at 12 months of age, and for wither height at 12 and 16 months of age.

Every boy who received a Sears Roebuck Foundation animal was required to sign a contract. Eighteen of the contracts are still in process and all others have been completed. No boy failed to meet the terms of the contract. Each boy paid an insurance premium of $18 to the area FFA. The fund has been adequate to meet costs of 11 replacement animals which were purchased for boys whose animals did not reach production age and produce a live calf. Half of the boys are in agricultural occupations. The Sears program has been very successful, but the teachers should place greater emphasis on production records.

3027. DUTTON, MARION DONNIE. A Basis for Organizing an Adult Education Program in Agriculture. Problem option, M. of Ag. Ed., 1961, North Carolina State College. 41 p. Library, North Carolina State College, Raleigh.

Purpose.—To make an analysis of the management practices and interest in adult education of 30 poultry producers in the Oakboro Community and analyze the information secured as a basis for organizing and developing an adult education program in that community.

Method.—An interview-type questionnaire was prepared. Each producer was visited personally and data collected. Each farmer was requested to give honest answers to the questions.

Findings.—This study indicated a need and a desire for an adult education program for the poultry producers in the Oakboro Community. The group preferred to meet as an informal group with all participating. The producers desired further information on the management of the laying flock.

It is felt that the course of instruction should be based on the results of the survey plus other interest areas of the producers.

3028. DYE, EDDIE LYNN. Factors Associated With the Quality, Nature, and Extent of Farm Mechanics Experiences Received by Student Teachers of Vocational Agriculture. Thesis, D. Ed., 1961, Oklahoma State University. 100 p. Library, Oklahoma State University, Stillwater.

Purpose.—To ascertain which of certain selected factors are significantly associated with the quality, nature, and extent of farm mechanics experiences of student teachers of vocational agriculture.

Method.—Twenty-one null hypotheses were tested to ascertain if certain selected factors common to teachers and to programs of vocational agriculture could be significantly associated with a student teaching program of farm mechanics. The study was limited to the experiences of agricultural education students completing student teaching at Sam Houston State Teachers College during the school year 1959-60. The personal interview technique was used in obtaining data from the 27 supervising teachers of vocational agriculture, and a daily farm mechanics activity schedule was used in obtaining data concerning the quality, nature, and extent of farm mechanics experiences received by the 47 student teachers.

Findings.—The student teachers engaged in 994 farm mechanics teaching experiences while student teaching; 657 of these experiences were received in the area of farm shop; 70 in the area of farm power and machinery; 92 in the area of farm electrification; 120 in the area of farm buildings and conveniences; and 55 were received in the area of soil and water management.

All 21 factors tested for significance in this study sustained the null hypotheses that there are no significant differences between the farm mechanics experiences received by student teachers and certain selected factors common to vocational agriculture.

It was concluded that significant differences did not exist between the farm mechanics experiences received in the following personal background characteristics of the supervising teacher: (1) Age; (2) experiences; (3) tenure; (4) vocational agriculture education background; (5) hours of college credit in farm mechanics; (6) farm mechanics experiences in high school; and (7) other mechanical training.

Significant differences did not exist between the farm mechanics erperiences received in the following: (1) Enrollment in high school; (2) enrollment in all-day classes of vocational agriculture; (3) percent of students who are farm boys; and (4) percent of community income received from farming.

It was also concluded that significant differences did not exist between the farm mechanics experiences in the following: (1) 3-

year time allotment for farm mechanics; (2) departments having adult and young farmer classes; (3) farm mechanics buildings and equipment facilities; and (4) sharing shop facilities.

A final conclusion may be drawn that with the elimination of a number of possible associated factors as a result of the study, the evidence is strengthened that the interest, initiative, and personality of the supervising teacher and the student teacher are probably the critical factors determining the extent and quality level of the student teaching program in farm mechanics.

3029. Eastwood, Gordon Ross. An Analysis of General Science and Biology Achievement by Vocational Agriculture and Non-Vocational Agriculture High School Boys. Thesis, M. A., 1960, University of Minnesota. 94 p. Library, University of Minnesota, St. Paul.

Purpose.—The problem may be stated as an attempt to test the assumption that high school students taking vocational agriculture achieve better understanding of science subject matter than they would without the experience gained through their agriculture study and practice.

To test this assumption it was assumed that if initial differences of ability, aptitude, and achievement in science were equated, boys who took vocational agriculture would, as a group, achieve higher grades in science than boys who did not take agriculture.

The population for the study consisted of all boys in the graduating classes of the years 1958–61 at a large rural high school. After the exclusion of 18 for whom data were incomplete, 264 (107 vocational agriculture and 157 nonvocational agriculture) had taken general science, and of these 169 (155 vocational agriculture and 114 nonvocational agriculture) had taken biology.

From school records the following data were collected:

(1) General science and biology letter grade; (2) Kuhlman Finch I.Q.; (3) Cooperative Science (Grade 9) Test Score; (4) A.C.E. Psychological Test Score. Transformations were necessary for statistical analysis.

Method.—General science and biology grades of vocational agriculture and nonvocational agriculture students were compared. The analysis of variance and covariance technique was used and a series of six 2 x 4 analyses set up to compare results in each of the science subject areas using the three measures listed above as covariates to partial out initial differences between the two groups.

In all analyses it was found that no significant "between years" effect existed and no "group by year" interaction was present.

Findings.—

1. In both subjects where a Cooperative Science test score was used as the covariate, there was no significant difference (5 percent) between the two groups. Adjusted means showed that such difference as existed was in favor of the nonvocational agriculture group.
2. Using A.C.E. score as the covariate a significant difference (1 percent) was found between the two groups in general science. This difference was in favor of the nonvocational agriculture group.
3. For both subject matter areas a significant difference (1 percent) was found when the covariate was Kuhlman-Finch I.Q. score. This difference was in favor of the nonvocational agriculture group.

When the adjusted means were ranked (1 to 8) in all six cases, positions 1, 2, and 4 were occupied by nonvocational agriculture. In one of the six cases, position 3 is occupied by a vocational agriculture group.

The study casts doubt upon the assumption that vocational agriculture students achieve a better knowledge of science as a result of their study of agriculture. This is a study of the population of one school and the data used were from school records. The necessary transformation of data for statistical analysis may have affected the results. Consequently generalizations from the results should be treated with the utmost caution.

3030. Edgecomb, Philip Leslie. Effects of Conceptual and Factual Verbal Presentations Upon Reading Achievement. Thesis, Ph. D., 1961, The Pennsylvania State University. 129 p. Library, The Pennsylvania State University, University Park.

Purpose.—To appraise the educational effectiveness of reading material prepared for a unit on quality milk production taught to high school students of vocational agriculture.

Method.—Conceptual and factual versions of organization of the reading material were used along with combinations of the two forms. The major variables were presentation methods, grade levels, and schools. The conceptual and factual versions of organization of the subject matter were scaled by the Dale-Chall Readability Formula to equalize the reading ease or difficulty of the two versions at a level appropriate for the lowest high school grade. The quality milk production booklet for each version was divided into Section I and Section II. The name assigned to each presentation method denotes the order in which students read the two sections of the booklet: (1) Conceptual-conceptual; (2) conceptual-factual; (3) factual-conceptual; and (4) factual-factual.

The educational effectiveness of the reading material was appraised by two tests: *Knowledge of Specific Facts: Producting Clean Quality Milk* and *Reading Comprehension Achievement: Producing Clean Quality Milk.* The 68 multiple choice statements were selected by item analysis of a pilot study with high school students. The reading comprehension testing technique, which permitted students to read the subject matter booklets while being tested, was used.

From the list of Pennsylvania high schools with vocational agriculture departments having at least 12 students in grades 9 and 10 and also in grades 11 and 12, 12 schools were chosen randomly for the reading experiment. The *Cooperative English Test, Reading Comprehension Form 2A,* and the 2 tests on quality milk production were administered as pretests to a total of 462 students. In both grade levels in each school one-fourth of the students were assigned to each presentation method. In each group three students were chosen randomly for the tests of the hypotheses, a total of 288 students. Multiple classification analysis of covariance was used to test the major hypotheses at the 0.05 level of significance. Correlated t-tests were made for gain in student scores. Prior opportunity for dairy farming experience was treated descriptively.

Findings.—Student achievement in reading the presentations was greater for students in grades 11 and 12 than for students in grades 9 and 10 when evaluated by both of the tests, *Knowledge of Specific Facts: Producting Clean Quality Milk* and *Reading Comprehension Achievement: Producing Clean Quality Milk.*

Student achievement was not significantly different among the four presentation methods. Student achievement in reading the presentations varied significantly among schools when evaluated by the two tests.

Students with dairy projects and whose parents had dairying as the major farm enterprise had higher pretest and reading achievement scores on the subject matter tests than other boys, but there was very little difference in the gains.

3031. EDINGTON, EVERETT D. Abilities and Characteristics of Young Adult Dairy Farmers in Pennsylvania Which Are Associated With Successful Farm Management. Thesis, Ed. D., 1961, The Pennsylvania State University. 91 p. Library, The Pennsylvania State University, University Park.

Purpose.—To determine relationships of selected characteristics and abilities of young adult dairy farmers with their level of success in farm management. The following were the criterion measures of farm management success: (1) Pounds of milk sold per farm operator; (2) dairy efficiency; (3) crop production; (4) labor efficiency; and (5) dollars of net income. The following characteristics were studied: (1) Knowledge of farm management as measured by a score on a Farm Management Test; (2) score on the D.A.T. Mechanical Aptitude Test; (3) score on the Minnesota Clerical Aptitude Test; (4) score on an Approved Practice Rating Scale; (5) score on a Community Participation Scale; (6) age; (7) years of formal schooling; (8) years in high school vocational agriculture; (9) years in 4-H Club work; and (10) years in young adult farmer class work.

Method.—In 12 randomly chosen multiple-teacher departments and 12 randomly chosen single-teacher departments of vocational agriculture, the young adult dairy farmers enrolled in classes and receiving on-farm instruction were classified according to level of instruction, (high or low number of hours) and scope of responsibility (high or low involvement) in the management of the farm business. Two of the young adult dairy farmers in each category in each of the 24 schools were randomly chosen to participate. This made a total of 192 farmers.

Each man was interviewed individually to obtain the criterion measures of his farm management success for the year of 1959. The farmers were brought together as a group at each school for the testing program. The differences and relationships were tested at the 0.05 level of significance by analysis of covariance, correlation, and multiple regression. A Fortran program for the IBM 650 Computer was written to test the hypotheses.

Findings.—There were no significant differences in the means of the five criterion measures between the farmers who attended multiple-teacher departments and those who attended single-teacher departments of vocational agriculture. The same was true between the high and low levels of instruction. It is possible that this classification should have been based upon the quality of instruction for each farmer rather than on the number of hours of on-farm and classroom instruction. The means for the farmers with high scope of responsibility were significantly higher for all five of the criterion measures. The farmers with high scope of responsibility sold 240,690 pounds of milk per farm operator compared with 159,890 pounds sold by men in the low responsibility group. Similarly, the standard scores were for dairy efficiency 51.78, and 48.50; for crop production 52.22 and 48.33; and for labor efficiency 52.09 and 48.22. The high responsibility farmers had an average net farm income of $4,620 compared to $3,299 for the low responsibility group.

Score on the Farm Management Test, score on the Approved Practice Rating Scale and years in 4-H Club work correlated significantly with each of the five criterion measures of success. Community participation correlated with all except crop production. Years of formal schooling correlated with pounds of milk sold per farm operator, dairy efficiency and crop production. Mechanical aptitude correlated with pounds of milk sold per farm operator and labor efficiency. The Farm Management Test score, Approved Practice score, and years in 4-H Club work were retained most consistently in the multiple-regression equations for the five criterion measures.

3032. EDSALL, ALAN R. A Study of Drop-Outs of the Milford Lakeview School. Report, M. Ed., 1961, University of Delaware. 26 p. Library, University of Delaware, Newark.

Purpose.—To find the answers to the following questions: (1) How many pupils who enter the 7th grade at Milford Lakeview School graduate? (2) What are the reasons for leaving school before graduation in the Milford area? (3) Is there a dropout problem at Milford?

Method.—The cumulative record folders for the individual pupils that attended the Milford Lakeview School from September 1956 through September 1960 in the grades 7 through 12 were checked to determine whether the pupil had graduated, transferred to another school system, or stopped attending school. Information was then collected for those students that had stopped school. Conferences were then held with the high school principal and the school nurse because each had personal contact with all of the students.

Findings.—A total of 148 students (4 percent) of an enrollment of 3,297 pupils, stopped school before graduation from the 12th grade at the Milford Lakeview School. There were 84 boys and 64 girls. The age range for dropouts was 13 years old to 20 years old, with the modal tendency being 16 years old.

Two main reasons for stopping school were (1) to go to work, and (2) to get married. These two reasons accounted for 42 percent of the cases.

One-third of those that were tabulated were passing their school subjects when they stopped. Dropouts can occur any month, but the largest percentage occurred in the spring months and the smallest percentage during the winter months.

3033. ENGLUND, DEWAIN L. A Comparison of the Programs of Work of Selected FFA Chapters. Thesis, M.S., 1960, University of Minnesota. 102 p. Library, Department of Agricultural Education, University of Minnesota, St. Paul.

Purpose.—(1) To determine the characteristics of the program of work in winning National Emblem Award FFA chapters; (2) the characteristics of the program of work in nonwinning FFA chapters; (3) some of the weaknesses of the nonwinning FFA chapters; (4) what suggestions may be made for the improvement of the programs of the nonwinning chapters; and (5) the characteristics of little difference between the winning and nonwinning chatpers.

Method.—A questionnaire containing over 500 judgments to be answered was mailed to the advisers of 20 National Emblem Award winners, and the advisers of 37 nonwinning chapters over a 5-State area. These States included North Dakota, South Dakota, Iowa, Wisconsin, and Minnesota. Eighteen of the 20 advisers of the winning chapters, and 27 of the 37 advisers of the nonwinning schools returned the questionnaires.

Findings.—The study was divided into the following divisions: (1) Return of the questionnaire; (2) time of year program of work is revised; (3) revision of the program of work; (4) preparation; (5) financing; (6) distribution; (7) program of work committees; (8) sections of the program of work; (9) supplementary material included; (10) completion of the activities; (11) National Chapter contest participants; and (12) other chapter data.

Results of the study showed that the winning chapters accomplished items more favorably in each of the 12 divisions than did the nonwinners. The winning chapters revised their programs earlier in the year, had more student participation in the program to a higher degree, and distributed copies of the program of work to more people than did the nonwinners. The winning chapters had their programs correspond to the 10 suggestive divisions as found in the new manual, whereas the nonwinners still followed the old 9 divisions, including a general committee. Findings showed that the winning chapters made their programs much more complete, and included more supplementary information than did the nonwinners. More students of the winning chapters were involved in completing the activities of the program and filling in of the National Chapter Award application than was true of the nonwinners. Findings showed that the winning chapters were considerably older and larger, and as a result, had more State and National Officers, more State and American Farmers, and more Honorary Farmers than did the nonwinning chapters.

3034. FINLEY, JAMES RICHARD. A Study of FFA Radio Programming in Ohio. Nonthesis study, 1961, The Ohio State University. 22 p. Agriculture Library, The Ohio State University, Columbus.

Purpose.—To determine the attitudes of Ohio radio program directors toward FFA radio programing and more effective means for radio programing by FFA chapters; also, to provide a guide to Ohio vocational agriculture instructors who wish to have radio broadcasts.

Method.—A questionnaire was prepared and a copy, plus an introductory letter, was mailed to each of 94 radio program directors in Ohio. The information tabulated from the returned questionnaires was analyzed.

Findings.—The findings of the study may be summarized as follows: (1) Use radio as a means of both disseminating information and of developing leadership in vocational agriculture students; (2) vary radio program content; (3) use young and adult farmers in radio broadcasts; (4) each county or region should have a vocational agriculture teacher as a coordinator for all chapters broadcasting from one station; (5) use spot announcements to inform the public of FFA and vocational agriculture activities.

3035. FLANAGAN, JOHN JAMES. A Study To Determine the Need for Additional Adult Educators To Be Assigned To Three West Virgina Counties, Fayette, Raleigh, and Summers. Thesis, M.S., 1960, West Virginia University. 49 p. Library, West Virginia University, Morgantown.

Purpose.—To determine whether farmers in southern West Virginia would attend adult vocational agriculture classes if they were offered in, or near, their communities.

Method.—All farmers under 50 years of age who had sold at least $150 worth of farm products produced on the farm during the preceding 12 months were included in the survey. Findings compiled in this thesis were gathered through mailed questionnaires and by interviews of 83 farmers.

Findings.—It was found that: (1) Forty-three, or 52 percent of those contacted, worked full-time on their farms and did not report any off-farm sources of income; (2) sixty, or 72 percent of the 83 farmers surveyed, said that they were interested in improving their farming operation; (3) only 27, or 33 percent, said that they would take training to enable them to secure off-farm employment indicating the desire of many to stay on the farm; (4) when the farmers were asked if they would attend classes in their community, fifty-two, or 62 percent, said yes; forty-five, or 86 percent, of this group of 52 indicated that they would attend classes at least once a month; (5) forty, or 48 percent, of them said that they would attend farm mechanics classes if offered.

Twenty-nine of those wanting to attend classes, or 55 percent, have never attended high school. Thirty-two, or 39 percent of the farmers, reported that facilities were now available in their community high school to conduct vocational agriculture classes.

These findings seem to indicate that the farmers in the three counties will be eager to take advantage of classes offered in, or near, their communities and that a vocational agriculture teacher should be assigned to meet this need.

3036. FOLTZ, DONALD A. A Study of United States Agencies Active in Foreign Agricultural Technical Assistance. Seminar Report, M.S., 1961, University of Wisconsin. 234 p. Department of Agriculture and Extension Education, University of Wisconsin, Madison.

Purpose.—The purpose was threefold: (1) To stress the importance of U.S. agricultural technical assistance in foreign underdeveloped countries; (2) to identify and discuss U.S. agencies active in technical agricultural assistance programs; (3) to discuss each of the above agencies in regard to pertinent employment considerations of interest to agriculturists thinking in terms of going into foreign service work.

Method.—Information was secured and compiled from library reference material, from requested letters and literature sent by agencies in the field of foreign technical assistance, and from questionnaire returns. The scope of the study included only nonprofit agencies which have employees participating in one or more of nine specified agricultural activities.

Findings.—Approximately two-thirds of the world's population is underfed. This situation in itself can often help explain why there is so much unrest and revolution—especially when one considers the huge food surpluses possessed by the relatively few. It is clear that efficient and effective agricultural production methods must be spread throughout the underdeveloped areas of the world.

It was found that there are at least 25 agencies (intergovernmental, governmental, private, and church) which are active in foreign agricultural technical assistance.

Healthy men, possessing desirable personality characteristics, educated, and experienced in agriculture, are in great and in ever increasing demand by the above agencies. Additional training is generally required in the language, culture, and history of the "worked-in" country.

Job compensations generally include insurance, various essential living expenses, travel expenses, and vacations. There is a wide range of salary—all the way from a maintenance level to $20,000 a year—depending on the employee and the agency worked for.

3037. FREYERMUTH, JAMES M. Needs of Young Adult Farmers in Central Pennsylvania for Instruction in Milkhouse Planning and Construction. Paper, M.Ed., 1961, The Pennsylvania State University.

60 p. Library, The Pennsylvania State University, University Park.

Purpose.—To appraise present and future needs of young adult farmers in central Pennsylvania for instruction in milkhouse planning and construction and to determine the nature of the needed instruction.

Method.—A multiple-choice test with questions in 5 problem areas was administered to 4 young adult dairy farmers in each of 12 schools in central Pennsylvania as a measure of knowledge of milkhouse planning and construction. Teachers also were given the test. An interview was conducted on the farm of each of the 48 men to learn: (1) The characteristics and condition of the existing milkhouse; (2) the present dairy enterprise status; (3) the planned status for 10 years in the future; and (4) the adequacy of the milkhouse for the dairy enterprise status planned for 1970.

Findings.—The average percent of questions answered correctly by the 48 farmers in each of the areas of the test was: The Dairy Situation, 61 percent; Sanitary Regulations, 57 percent; Equipment Specifications, 58 percent; Construction Principles and Building Materials, 37 percent; Drawing Plans and Estimating Costs, 57 percent. Individual farmer scores averaged 39 percent. The average score for teachers was 47 percent. A question on proper size of footer for a milkhouse was answered correctly by only 21 percent of the farmers, a question on roof pitch by 11 percent, and one on figuring milkhouse dimensions in full and half units of concrete masonry by only 21 percent.

The existing milkhouses averaged 11 years of age and 176 square feet of floorspace. About three-fourths were made of concrete blocks and were located within 15 feet of the milking area, joined to the barn by direct openings, breezeways, or vestibules. Window area averaged 16 percent of the floorspace.

The present herd size and production were 23.6 cows and 10,566 pounds of milk. Milk produced in the month of greatest production was 1.34 times the average monthly production. Planning 10 years ahead, the man expected to average 36.7 cows producing 13,026 pounds of milk per cow per year. On the basis of 1970 production plans and condition of the existing milkhouses, 56 percent of the farms will need new milkhouses. This was determined primarily by space requirements for the size of bulk tank that will be needed.

The study showed that farmers need instruction. A 30-page booklet, "Information and Suggestions for Planning New Milkhouses," was prepared for teachers to use in developing an effective resource unit.

3038. GIBSON, DAVID V. A Study of Certain Conditions and Situations Regarding Shops, Classrooms, and Offices in Selected Programs of Vocational Agriculture and Industrial Arts in Virginia. Thesis, M.S., 1961, Virginia State College. 103 p. Library, Virginia State College, Petersburg.

Purpose.—To discover certain current administrative functions and problems in the administration of farm mechanics and industrial arts instruction where both were offered in the same high school.

Method.—Eight areas of administration and operation of programs of vocational agriculture and industrial arts education were studied. The data secured represented replies from 24 teachers of vocational agriculture and 22 teachers of industrial arts.

Findings.—All of the teachers involved in the study devoted the majority of their professional time to their major fields of teaching emphasis. Approximately one-half of the shops studied were connected to the main school building. A high percentage of the teachers did not favor sharing the shop with another teacher.

Forty-one and seven-tenths percent of the agriculture teachers and 63.6 percent of the industrial arts teachers believed that funds allotted were adequate for the operation of the shop program. Fees from students were required by 77.3 percent of the industrial arts teachers and by 37.5 percent of the vocational agriculture teachers. Few teachers were required to raise funds for shop operation.

Adequate machines for shop work were reported by 58.3 percent of the teachers of vocational agriculture and by 59.3 percent of the teachers of industrial arts.

Classrooms were shared by 62.5 percent of the teachers of vocational agriculture and by 72.7 percent of the teachers of industrial arts.

3039. GREENE, KINGSLEY L. Job Opportunities in Certain Occupations Related to Farming in the Syracuse, New York, Economic Area With Implications for Vocational Agriculture. Thesis, M.S., 1961, Cornell University. 102 p. Library, Cornell University, Ithaca.

Purpose.—To determine: (1) Which of certain occupations related to farming were important in terms of job opportunities; (2) what training and background were needed for those entering the related occupations; and (3) the role of vocational agriculture in providing special vocational training for these related occupations.

Method.—Data were collected from 282 employers by mail questionnaire and from 67 employers via personal interview. These 349 comprised all of the employers hiring people in the 17 selected occupations within a 5-county area in central New York State.

Findings.—There were 151.7 job opportunities each year in the area surveyed in the selected occupations, and 4.1 job opportunities per vocational agriculture department in the area surveyed in the same occupations.

Employers in the selected occupations preferred employees with a high school education, but special vocational training was not a prerequisite. The largest single percentage of employers responding indicated a preference for employees with training in vocational agriculture. A farm background and formal school training in agriculture were found to be important for those entering these occupations.

Employers' opinions were, for the most part, evenly divided as to whether or not on-the-job training time could be reduced through special school training and as to whether or not the public schools should provide such training.

It was concluded that there were insufficient numbers of job opportunities in the related occupations studied to consider them important enough to warrant special vocational training in individual vocational agriculture departments. It was further concluded that those aspiring to enter these occupations should have a high school education, training in vocational agriculture, and farm experience. Finally, it was concluded that the role of the individual vocational agriculture department was not to provide special vocational training for the occupations surveyed, but rather to continue to provide sound training within the present curriculum in agriculture.

3040. Grimes, Melvin W. Occupational Status of Former Students of Vocational Agriculture of the Russell Grove School, Amelia, Virginia, From 1951 Through 1960. Paper, M. Ed., 1961, The Pennsylvania State University. 42 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose.—(1) To list present occupations of former students; (2) to determine the extent to which farm mechanics training was being used in their jobs; and (3) to survey expressed needs for teaching of additional mechanical skills.

Method.—Data were obtained by interviews with former students living in the area. A questionnaire was mailed to those not living in the county. Of 199 students during the 10-year period, information was tabulated for 104 persons.

Findings.—The former students were employed in 26 different occupations. There were 27 in the Armed Forces, 13 in farming, and 8 were day laborers. None were farm-owners, but 8 of the 13 engaged in farming had a partnership status. There were 53 in 22 nonagricultural occupations, not including the Armed Forces. The most frequently stated reasons given for selection of their present occupations were: (1) Liked the work; (2) need for immediate income; and (3) acceptable wages.

Farm mechanics skills taught in school were being used by the following numbers of former students: Electric wiring by 34; repair of gasoline engines by 28; arc welding by 26; sharpening of handtools by 25; soldering by 24; and acetylene welding by 23.

Need was expressed for further training in the area of carpentry by 34; in painting by 34; in concrete work by 23; in masonry by 18; in plumbing by 18; and in drafting by 14 persons. An instructor has been hired to teach carpentry and masonry in the 1961–62 school year.

3041. Guelker, William Edward. A Proposed Adult Farmer Program for the Staples, Minnesota, Community. Thesis, M.S., 1959, University of Minnesota. 122 p. Library, Institute of Agriculture, University of Minnesota, St. Paul.

Purpose.—To outline an adult education program for the Staples community that will meet the minimum requirements contained in the Smith-Hughes and related acts and the individual needs of the majority of the farmers who should be served.

Method.—The writer reviewed reference books and recent studies dealing with methods of teaching adult farmers. He also made use of his 6 years of experience teaching adults in the Staples High School to formulate an adult program for this community.

Findings.—The author developed a complete adult farmer program for the Staples community. The core is an intensive 5-year plan for teaching farm management, based on the assumption that in 5 years a farmer can be taught to keep accurate accounts, understand the analysis of his records, master the principles of management, and plan a profitable farming program for his farm.

The following is the method of procedure for this 5-year plan:

1. Each year select capable farmers who are interested in improving their farming business.
2. Have the farmers keep a complete record of their farming operations in the Minnesota Farm Account Book. These records would be analyzed each year by the Minnesota Vocational Agriculture Farm Management Program.
3. Schedule planned meetings throughout each year exclusively for the group. The general approach to each year's meetings is:
   a. The first or "Where Am I" year.
   b. The second or "Where I Want To Go" year.
   c. The third and fourth "How Do I Get There" years.
   d. The fifth or "Preparation for the Future" year.
4. Make individual farm visits.
5. Help each farmer develop a profitable plan of operation for his farm.

6. Terminate individual farmer's enrollment at the end of 5 years, but continue to give on-farm instruction. Farmers may continue to enroll in other adult classes.

Other phases of the total program include traditional evening classes in technical agriculture, specialized farm machinery instruction, and general farm mechanics classes.

3042. HAMILTON, VANCE EUGENE. **Patterns of Responsibility in Multi-Teacher Departments. Problem option, M. of Ag. Ed., 1961, North Carolina State College. 91 p. Library, North Carolina State College, Raleigh.**

Purpose.—To gain a better insight into the operation of multiteacher departments in North Carolina.

Method.—The total number (41) of multiteacher departments in operation in North Carolina in the school year 1959–60 was used in this study. These departments were surveyed by use of a questionnaire designed to obtain the patterns of various phases of vocational agriculture programs. Two case studies were made of multiteacher departments.

Findings.—This study investigated the patterns of responsibility of multiteacher departments in North Carolina. Nine areas were studied and a wide variety of patterns was found. It was found that less than 20 percent of the departments had a head teacher.

The most popular pattern of dividing the responsibilities of teaching the high school enrollment was a division of the students on the basis of grades. The most common division was to let one teacher in a two-teacher department teach the 9th and 10th grades and the other teach the 11th and 12th grades. In supervision, over 95 percent of the departments were operating so that each teacher supervised the students he taught. The most popular pattern concerning FFA was the one in which a department had one chapter with no definite adviser.

More than 80 percent of the departments were using the pattern of all teachers sharing equally in working with adults.

Planning programs was a joint effort on the part of 70 percent of the departments. The majority of the departments were following the pattern of teachers jointly deciding upon the supplies and equipment to buy.

A case study of a five-teacher department revealed more specialization in all phases of the program than was found in the two- and three-teacher departments.

3043. HANSON, LESLIE MYRON. **Vocational Agriculture Programs in Minnesota High School Departments with Small Enrollments During 1958–59. Thesis, M.S., 1961, University of Minnesota. 70 p. Library, Department of Agricultural Education, University of Minnesota, St. Paul.**

Purpose.—To study the use of time of agriculture teachers with various levels of enrollment in departments with 30 or fewer high school students enrolled and to compare the relation between net worth and farm instruction calls per student, teacher travel, and student farming programs.

Method.—The study includes 50 schools having 30 or fewer students enrolled in high school vocational agriculture classes. Data was collected from reports on file in the State department of education. The data indicated the class schedule, student farming program scope and teacher travel. The schools were grouped in five enrollment levels. Comparisons were made with enrollments of from 11–14 students, 15–18 students, 19–22 students, 23–26 students, and 27–30 students.

Findings.—Schools with a high percentage of farm boys have larger enrollments in vocational agriculture classes. The type of farming area has no effect on enrollment level. Low-enrollment-level departments have students with higher net worth values and more working capital than higher enrollment levels. The schools reporting high student net worth values also reported more farm instruction calls per student than the schools having low student net worth values.

Recommendations.—Schools with low levels of enrollment in vocational agriculture should be encouraged to remain functioning and expand their offerings in areas of young and adult farmers. Agriculture teachers should be encouraged to make more farm instruction calls. A second agriculture teacher should be hired in schools, where possible, to serve the needs of high school students when the vocational agriculture enrollment in high school gets above approximately 18 students. The counseling and guidance opportunities available in the school system should be used to enroll only those students capable of carrying on a farming program with financial progress and also those students planning to enter agriculturally related fields.

3044. HANSEN, RALPH LELAND. **An Analysis of Student Accidents and Teacher Liability in Activities Related to Vocational Agriculture in Nebraska. Thesis, M.S., 1960, University of Nebraska. 64 p. Library, University of Nebraska, Lincoln.**

Purpose.—Major purposes of the study were: (1) To learn of the incidence and causes of student injuries; (2) ascertain the responsibility and liability of the instructor in cases of pupil injury; (3) ascertain the liability of the school district; (4) learn of the number of insurance programs presently being carried; (5) ascertain the number of instructors protected with personal liability insurance; and (6) recommend to instructors protective measures that they can employ in connection with student injuries.

Method.—The legal responsibility and liability of teachers for student accidents in activities related to vocational agriculture were determined by reviewing authoritative literature. A questionnaire was developed and mailed to the 145 instructors of vocational agriculture in Nebraska high schools. Returns were received from 126 of the teachers, or 86.9 percent.

Findings.—Seventy-one of the instructors, or 56.3 percent, indicated that students under their supervision had been involved in a serious "vo-ag accident." The instructors reported 95 "vo-ag accidents" which had occurred in Nebraska high schools. Accidents involving the power tablesaw were most frequently reported. Thirteen of the accidents, or 13.7 percent, involved this machine. Eleven of the accidents, or 11.6 percent, involved the power grinder. The electric arc welder was involved in 10 of the accidents, or 10.5 percent. Eight accidents, or 8.4 percent, resulted from loading, lifting, or moving heavy objects. Fifty-two of the 95 accidents, or 54.7 percent, had occurred during the 3 years preceding the study.

The responding instructors reported the four leading causes of accidents as: Carelessness, 64.1 percent; horseplay, 12.6 percent; mechanical failure, 5.8 percent; and unguarded machine, 2.8 percent. Eighty-two of the accidents, or 86.3 percent, occurred while students were engaged in farm mechanics activities.

The investigator found that teachers are liable for student accidents if teacher negligence can be proved. Teachers have a definite responsibility to exercise care for the students' safety.

School districts in Nebraska are immune from liability under the present law. Fifty-two of the injured students, or 54.7 percent, received no financial aid from either the high school or an insurance company following their injury. Eighty-nine of the 125 schools, or 71.2 percent, made insurance available to students to pay for injuries in all school activities. Forty-two of the instructors, or 33.6 percent, indicated that they were protected by personal liability policies.

Protective measures to employ in connection with student injuries in activities related to vocational agriculture were recommended.

3045. Hatch, Randal Layton. The Vocational Status of Former Students of Vocational Agriculture in the Mesa High School. Problem, M. Agr. Ed., 1961, University of Arizona. 35 p. Department of Agricultural Education, University of Arizona, Tucson.

Purpose.—To determine: (1) The present vocations of students who studied vocational agriculture in Mesa High School from 1940–41 to 1959–60 and the number of former students following each vocation; (2) the extent and nature of their education after high school graduation; and (3) the extent to which instruction in vocational agriculture was useful to these students in their present occupations.

Method.—The information needed in the study was secured by personal interviews and a questionnaire which was checked and reworded through interviews and tryouts with high school agriculture instructors and former students. Questionnaires were sent to 680 former students, and 221 of these were completed and returned. Forty of these were obtained by interview.

Findings.—There were 47 (21.25 percent) of the former students of vocational agriculture in four agricultural occupations. Twenty (9.05 percent) of the former students were in related agriculture occupations. There were 47 occupations not related to agriculture being followed by 106 (47.96 percent) of the former students. There was a noncommitted group of 48 (21.71 percent) of the former students in temporary occupations, such as military service, missionaries and college students.

There were 143 (64.70 percent) of the former students who attended college; 47 received bachelor's degrees, 4 received master's and 2 received the Ph. D. degree. Five of the six advanced degrees were in agriculture. Of the 143 who attended college, slightly more than one-half (50.35 percent) of the former students completed only 2 or less years of college.

There were 106 (43.43 percent) former vocational agriculture students who believed vocational agriculture increased their interest for further education.

There were 105 former students (68.18 percent), of the nonrelated occupational group who wanted more vocational courses in high school for job preparation.

Omitting the 48 noncommitted students, 41 of the 173 former students (23.69 percent) are in agricultural production. Twenty-six (15.02 percent) were in occupations directly related to production agriculture. Therefore, a total of 61 (38.71 percent) of the former students were established in agriculture or related occupations.

Former students rated the skills learned in farm mechanics as the most beneficial part of instruction in agriculture. The ability least mentioned was money management.

3046. Hemp, Paul E. An Analysis and Appraisal of FFA and Vocational Agriculture Contests and Award Programs in Illinois. Nonthesis study, 1961, University of Illinois. 89 p. Division of Agricultural Education, University of Illinois, Urbana.

Purpose.—The principal purpose was to analyze and appraise vocational agriculture and FFA contests and award programs in Illinois.

Method.—The investigator interviewed a teacher in each of the 25 sections to find out what contests and award programs were being conducted. A survey was made of 100 teachers and 500 senior students to ascertain their attitudes toward contests and award programs. Data were obtained from records in the State supervisor's office. Recent research findings in the field of agriculture and education were identified by a review of literature.

Findings.—Teachers rated State Farmer degrees, land judging, production awards, livestock fairs, public speaking, and Star Farmer awards highest in educational value and poultry fairs, dairy products, meat judging, FFA chapter program of work contests, grain-judging contests, and poultry-judging contests lowest.

A majority of the teachers included in this study thought lievstock judging contests, crops-judging contests, and agricultural fairs should be revised or eliminated.

Senior students who had won an award in a particular activity rated that activity higher than did students who had not won an award.

Research findings from the fields of education and agriculture show that many of our contests are antiquated and of doubtful value. Contests which go as far as the national level are often frozen in terms of pattern and form at local, sectional, district, and State levels.

Only 1 of the 100 teachers surveyed reported that written policies regarding the place of contests and award programs had been developed. Some teachers, students, and others do not have a reasonable philosophy regarding FFA and vocational agriculture contests and award programs.

3047. **Henderson, Carwin Edward.** Organizing, Administering, and Conducting Adult Farmer Classes in Northeastern Nebraska. Report, M.S., 1960, Oklahoma State University. 46 p. Department of Agricultural Education, Oklahoma State University, Stillwater.

Purpose.—To identify the following: (1) The attitudes, understandings, and cooperation of school superintendents toward adult farmer programs; (2) means of notifying, contacting, creating interest; (3) the various methods and techniques used in teaching adult farmer classes; (4) probable value of refreshments and recreational activities as a part of the program; and (5) important administrative problems.

Method.—Two questionnaires were prepared. One was sent to teachers of vocational agriculture in northeastern Nebraska and the other to school administrators of the same schools.

Findings.—Vocational agriculture teachers and school superintendents in this study agreed with a varying degree of importance that the following were the most important administrative problems in adult farmer education: (1) Selecting an evening to schedule class and securing attendance; (2) workload of the vocational agriculture teacher; (3) organizing the class. The study reveals that 80 percent of the superintendents surveyed favored adult farmer programs for the following reasons: (1) Good public relations; (2) provide current knowledge for farmers in their communities; (3) give adults a better perspective of the school. Personal contacts and letters were found to be the best means of notifying farmers of adult class meetings.

To plan and conduct the program carefully the author has found these areas to be critical: (1) Informing the administration of the purpose and possible results of the program; (2) scheduling the meeting dates to avoid conflicts; (3) selecting and securing outside speakers; (4) reaching a large percentage of farmers in the area; (5) lessening the workload of the teacher.

3048. **Henry, Cyrus James.** Placement Opportunities for Farm-Operators in the San Carlos Irrigation and Drainage District, Pinal County, Arizona. Master's problem, M. Ag. Ed., 1960, University of Arizona. 29 p. Library, Department of Agricultural Education, University of Arizona, Tucson.

Purpose.—To determine: (1) The average size and number of farm units in the San Carlos Irrigation and Drainage District; (2) the placement rate of all farm-operators in that area; and (3) the rate of placement in farming of 4-year vocational agriculture students who had graduated from high schools in the San Carlos Irrigation and Drainage District service area.

Method.—Data for a 20-year period about land ownership and transfers, lease arrangements, and partnerships were obtained from the Pinal County Recorder's Office and the Office of the San Carlos Irrigation and Drainage District. Information about vocational agriculture graduates was obtained from the instructors of the vocational agriculture departments of the area.

Findings.—The average amount of land farmed by individual operators in the district has fluctuated from year to year, but has not changed appreciably in the past 20 years. The average size of farm unit in the San Carlos Irrigation and Drainage District for the period 1941–60 was 69.6 acres. The total number of farm operators has decreased slightly since July 1, 1952. During this period, owner-operators have increased in number and lessee-operators have decreased. The number of changes of tenure each year of owner-operators showed no apparent trend toward increasing or decreasing. The number of changes each year of tenure of lessee-operators showed a slight but steady increase throughout the period of study. The rate of placement opportunities compared to the total number of farm operators averaged 14.4 percent.

3049. Herndon, Leo P. Use of the Vocational Agriculture Teacher's Time in Colorado Public Schools. Master's report, M. Ed., 1960, Colorado State University. 138 p. Library, Colorado State University, Fort Collins.

Purpose.—To determine how the time of the vocational agriculture teachers is being employed.

Method.—A survey of the vocational agriculture teachers in Colorado was conducted to determine the usage made by teachers of their time. The survey consisted of a time record kept by each vocational agriculture teacher for one week during the first semester and for one week during the second semester for all duties during and outside the regularly scheduled school day. Time records were returned by 90 percent or 63 of the 70 vocational agriculture teachers in Colorado. This information furnished data which became the basis of this study as compiled and analyzed.

Findings.—The median number of hours spent weekly by teachers of vocational agriculture in Colorado on all school activities during and outside the regular scheduled schoolday was 58.95 hours. The following was the average weekly time spent during the regular schoolday: All duties involving the vocational agriculture program, 28.28 hours; nonvocational teaching duties, 5.75 hours; extracurricular activities, 1.75 hours. Outside the regular schoolday the weekly average time spent was: Vocational agriculture duties, 17.35 hours; nonvocational duties, 0.72 hours, and extracurricular activities, 3.11 hours.

Nonvocational subjects were being taught by 83 percent of the respondents in the following areas: General agriculture, general shop, general science, biology, social studies, physics, chemistry, mechanical drawing, driver training, eighth-grade shop, and general mathematics. The average number of hours spent weekly teaching vocational agriculture classes was 19.40 hours. The average number of hours spent weekly outside the regular schoolday making on-farm instruction visitations was 4.19 hours. The average number of hours spent weekly on FFA during the regular schoolday was 2.44 hours, and outside the regular schoolday, 3.60 hours.

3050. Hilterbrand, Luther R. A Study of the Educational Needs of the Employees of the Wood-Products Industries in Fourteen Counties of South Central Missouri. Thesis, Ed. D., 1961, University of Missouri. 191 p. Library, University of Missouri, Columbia.

Purpose.—To determine the educational needs of the employees of the wood-products industries in 14 counties of south-central Missouri.

Method.—Data were obtained by means of interviews with 53 owners or operators of selected wood-products industries, and from information forms sent to the teachers of vocational agriculture in the 14 counties.

Findings.—Expansion of the wood-products industries would furnish additional employment and stimulate business growth. Machine work, forestry, carpentry, welding, machine operation, and agriculture were the specific training areas the industries desired for their employees.

Over one-half of the industries wanted their employees to have trade and industrial training, and about one-third wanted them to have agricultural training.

The teachers of vocational agriculture do not know what to do about the problem of providing basic training for the industry and are often unaware the problem exists. The teachers believe they can best contribute to the training of wood-products industry employees in the area of farm mechanics.

Training in vocational agriculture in the present program is—on the whole—judged inadequate for the employees of the industry.

Most of the teachers believed that conservation and forestry should be taught to students of vocational agriculture. Most teachers believed that reorganization of schools and establishment of area vocational schools would be beneficial for the local program of vocational agriculture. Some teachers believed that training in wood-products industries should be a responsibility of area vocational schools.

Further reorganization of school districts and establishment of area vocational schools should make possible specific types of training which are not available in local schools at the present time.

Information based on these data should be made available to high school counselors in the area for their use as related to the expansion of the industry.

3051. Horner, James T. A Followup Study of First-Year Instructors of Vocational Agriculture in Nebraska. Nonthesis study, 1960, University of Nebraska. 40 p. Library, University of Nebraska, Lincoln.

Purpose.—To gain some insight into ways of improving the followup assistance to first-year teachers by: (1) Identifying professional problem areas in which instructors of vocational agriculture need assistance; and (2) ascertaining the kinds of assistance for which they feel a need.

Method.—A questionnaire designed to secure information regarding instructional loads, problems, and kinds of followup assistance needed was mailed to the 19 first-year teachers in Nebraska. They were asked to indicate on a detailed checklist including eight professional categories the extent of their need for assistance with problems. Likewise, they were asked to rank inservice activities according to value in contributing to the solution of their problems.

Findings.—The findings of this study have implications regarding both the preservice and inservice programs. Half of the new instructors had high school enrollments of 25 or less. About 85 percent of them were teaching only vocational agriculture courses, and three-fourths of them conducted adult classes.

The data indicated that the professional activities with which new teachers of vocational agriculture needed the most assistance pertained to working effectively with local people, in developing challenging programs.

The 12 activities as ranked by teachers as most serious in respect to need for assistance follow:

1. Planning instructional programs based upon actual local needs.
2. Challenging the ability of all students.
3. Obtaining assistance from parents and advisory groups in program planning.
4. Guiding students toward constructive self-analysis.
5. Selecting new textbooks and equipment.
6. Helping students plan, conduct and evaluate supervised farm experiences.
7. Arousing and maintaining student interest in subject matter.
8. Developing students' interest in the supervised farming program.
9. Developing specific goals and plans—longtime, annual, and immediate.
10. Involving students in planning objectives and units.
11. Using evidence other than tests to mesaure students' progress.
12. Stimulating interest in out-of-school courses.

These teachers were desirous of followup assistance of a personal, "on-the-spot" nature. They considered personal conferences with the college staff member and three-way conferences, including the local school administrator, of most value. The next most desired type of inservice activity was workshops or conferences conducted specifically for first-year teachers.

It was apparent that the teachers desired followup visits soon after becoming employed. According to the responses, the most desirable month for followup visits from college staff members was October. Also, September and November rated high. These, incidentally, were the months in which the visits had been made in the past. Every month was mentioned. Although it has not been customary for college staff members to make followup visits during the summer, July and August were rated about midway on the scale. The teachers felt that visits should be either a full day or one-half day in length, depending upon the teachers' schedules. At least two visits were desired by about 90 percent of the instructors.

3052. Horner, J. T., Nuttle, J. R., and Schnieder, R. D. **Academic Achievement, Course Patterns and Persistence of Former Students of Vocational Agriculture Contrasted With Non-Vocational Agriculture Students at the College of Agriculture, University of Nebraska.** Nonthesis study, 1960, University of Nebraska. 20 p. Department of Vocational Education, University of Nebraska, Lincoln.

Purpose.—To learn how students who had vocational agriculture in high school and attended the college of agriculture compared with their nonvocational agriculture counterparts.

Method.—The records available at the university registrar's office of 421 male students who enrolled in the Nebraska College of Agriculture during the fall of 1952 through 1955 were analyzed in terms of (1) academic achievement; (2) course patterns; and (3) persistence in the college.

Findings.—Proportionately, a much greater number of students with a vocational agriculture background attend the college of agriculture than of students without such high school training. Not only were more than one-half of the students former students of vocational agriculture but a higher percentage of them remained to graduate from the college. Slightly more than three-fifths (62.7 percent) of all the students graduated. Two-thirds (66.4 percent) of the the vo-ags and only 58.7 percent of the non-vo-ags graduated.

The accumulated grade averages of those students who, while they were in high school, completed 3 or 4 years of vocational agriculture were significantly better (at the 1 percent level) than were the grades of those who had not taken high school vocational agriculture.

On a grading scale of 0 to 9 (9 high) non-vo-ags graduated from the college of agriculture with a 5.7 grade average. This same grade average was attained by the group of students with either 1 or 2 years of high school agriculture training. But those who had taken high school vocational agriculture for 3 or 4 years accumulated college grade averages of 5.9 and 6.0, respectively.

The analysis of the college course patterns of the vo-ags and non-vog-ags revealed the following: A higher percentage of the former students of vo-ags elected college courses in mathematics than of their non-vo-ags brothers, and they made slightly better grades. Otherwise there were no significant differences between the two groups as to the percentages taking the various subjects, the amount of hours carried in each subject or the accumulated grade averages in each area. Although not statistically significant, the non-vo-ags did accumulate slightly better records in English and science while in math, social sciences, technical agriculture and on their total academic programs the vo-ags outperformed the non-vo-ags.

3053. **Hutchinson, James Herman.** **A Study of the Participating Experiences of Student Teachers of Vocational Agriculture. Dissertation, Ph.D., 1961, Louisiana State University. 131 p. Library, Louisiana State University, Baton Rouge.**

Purpose.—This study was concerned with evaluations by teacher trainers of participation experiences which could be utilized to benefit the student teachers during their apprentice teaching period. The specific purpose of this study was to determine which of the participating activities involved in the student teaching situation are considered by teacher trainers to be the most critical in the formation of the basic concepts of a beginning teacher of vocational agriculture.

Method.—This investigation took the form of the normative survey method employing the questionnaire. Literature in the field of student teaching in general education, as well as in vocational agricultural education, was studied to obtain facts in formulating the questions.

The questionnaires were sent to teacher trainers in 50 institutions, one to each of the 49 States of the United States offering college credit in vocational agricultural education, and Puerto Rico. Of the 50 questionnaires mailed, 43 usable replies were received.

Findings.—For the 43 teacher education institutions included in this study, the length of the student teaching period varied from 3 to 48 weeks. There were 881 student teachers in training for an average of 10.5 weeks, with 2 students assigned to a teaching center. There was an average of 11 teaching centers for each institution. Twenty-nine of the 43 universities paid stipends to their cooperating teachers of vocational agriculture. Less than one-half of the schools required higher degrees of these supervising teachers.

There were 170 participating experiences commonly recognized as part of the job of the teacher of vocational agriculture that were summarized under the following areas:

1. Realizing the general philosophy and objectives of the school.
2. Developing favorable community and school relationships.
3. Selecting pupils for vocational agriculture.
4. Planning the community program for vocational agriculture.
5. Organizing and using advisory councils.
6. Teaching all-day groups.
7. Supervising farming programs.
8. Advising the Future Farmers of America chapter.

3054. **Jacoby, Walter.** **Policies and Practices in the Administration of Multiple-Teacher Vocational Agriculture Departments in the United States. Thesis, Ph.D., 1961, University of Connecticut. 274 p. Library, University of Connecticut, Storrs.**

Purpose.—The major purpose of the study was to determine the present and desired levels of participation of administrative agents concerned with multiple-teacher departments of vocational agriculture.

Method.—A 50-percent sample of multiple-teacher departments of vocational agriculture was drawn and questionnaires were mailed to a teacher in one-half of the sample schools and to a superintendent or principal in the other half of the sample. A total of 275 usable responses were received, representing 65.6 percent of 419 schools.

Findings. — Multiple-teacher departments were rated above average by administrator of teachers. These departments were associated with large high schools. The median enrollment of all-day students was over 70 and over two-thirds of the departments offered courses for both young and adult farmers.

Present and desired levels of participation in six administrative agents, present in chart and tabular form indicated:

1. The department head and all teachers, in schools where a department head is not designated, have a major role in administration.
2. The superintendent and principal participate at a high level in personnel policies and practices.
3. Advisory councils may play a more important role in attending meetings of the board and suggesting new policies to the board or superintendent.
4. Increased participation on the part of the superintendent was derived in attending meetings of the advisory council, selecting FFA chapter adviser, and reviewing programs.
5. Increased participation on the part of the principal was indicated for six practices including classroom visitation.
6. The desired level of participation for department heads would require increased attendance of meetings of the board of education, making classroom visitation, and more freedom in authorizing purchases.

7. Increased use of the following policies and practices was favored: Using an advisory council; designating a department head; using special teachers for young and adult farmer classes; developing weekly or monthly calendars of duties; enrolling all-day students from other school districts; grouping students according to vocational objectives; employing some teachers for only the school year; and reducing teaching load for the department head.

3055. JAMES, KENNETH E. Influence of Vocational Agriculture on Farming in Chariton County with Implications for Adjustment. Thesis study, Ed. D., 1961, University of Missouri. 244 p. Library, University of Missouri, Columbia.

Purpose.—To determine the effectiveness of the program of vocational agriculture in a selected area of Missouri.

Method.—The data were obtained through: (1) A short interview with 100 farmers selected at random in Chariton County; and (2) from extended interviews with a stratified sampling of 50 farmers with 3 or 4 years of vocational agriculture and 50 farmers without such training, all full-time farmers under 55 years of age and high school graduates.

Findings.—The mean age of the 100 farmers selected at random was 52.8. The classification included 70 percent farming full-time, 21 percent farming part time, with 9 percent residing on farms with land leased to government or operated by others. Thirty percent had some training in vocational agriculture. Of the full-time farmers in the group 49 years and under, 64.3 percent had some training in vocational agriculture. Thirty percent had graduated from high school, with another 10 percent having had some high school work. Forty-three percent of the farm operators who graduated from high school had vocational agriculture.

The mean age of farmers with training in vocational agriculture was 34 as contrasted to 43 for those without vocational agriculture. The net farm income for the vocational group in the stratified sample was greater than for the nonvocational group, even though the total assets and gross sales were larger for the latter. Use of recommended practices was greater for seven of eight enterprise areas for farmers who had training in vocational agriculture than for the farmers without such training.

A significant difference in favor of the vocational group was found for those who made frequent use of information from radio and television programs, field days, and sponsored programs by vocational agriculture and agricultural extension.

The vocational group had a higher percentage of farmers with membership in 9 of 10 farm organizations. Ninety-seven percent of the 100 stratified samples considered vocational agriculture to be beneficial to students entering other agricultural occupations.

More farmers expressed need for instruction for adult farmer classes than actually attended such classes.

3056. JENSEN, ARTHUR K. An Analysis of Farm Mechanics Knowledge and Skills Needed by Wisconsin Farmers. Thesis, Ph. D., 1961, University of Wisconsin. 115 p. Library, University of Wisconsin, Madison.

Purpose.—To determine which of 143 selected mechanical skills were actually being performed by Wisconsin farmers, and what attitudes they had toward training as preparation for the performance of these skills.

Method.—A mail questionnaire was used to collect data from farmers who were cooperators with the Wisconsin Crop Reporting Service. The data were tabulated and analyzed on the basis of 2,464 usable returns from farmers throughout the entire State.

Findings.—In the performance of the skills included in this study, 63 had been performed by 30 percent or more of the respondents. Thirty-one (22 percent) had been performed by 50 percent or more of the respondents. Eighty skills had been performed by less than 30 percent of the farmers.

Over 50 percent of the respondents implied that no training was needed for the performance of 41 of the skills. In 95 of the skills over 50 percent of the respondents expressed the view that training of some degree was desirable. There were 11 skills in which 25 percent or more of the respondents indicated the skill should be hired performed. Of the 31 skills performed by over 50 percent of the respondents, there were only 13 in which 50 percent or more of the respondents desired training. Of the 80 skills performed by less than 30 percent of the respondents, there were 62 in which 50 percent or more of the respondents expressed desirability of training.

Farmers over 55 years of age expressed less need for training as preparation for a skill than did those under 55. The level of educational achievement and enrollment in vocatonal agriculture were factors which appeared to increase the receptiveness of respondents toward training.

Analysis of the data indicated respondents operated larger farms, were slightly older, had a few more years of farm operation, and were more generally owners or part owners of the farms they operated, than the average Wisconsin farmer.

3057. KENNEDY, NORMAN L. The Relationship Between Participation in Vocational Agriculture Programs, Other

High School Courses, and Student Leadership in College. Thesis, M.S., 1961, Washington State University. 28 p. Library, Washington State University, Pullman.

Purpose.—(1) To ascertain whether vocational agriculture activities in high school tend to develop leaders in college; (2) to determine the amount and kinds of subjects taken by vocational agriculture students in high school as compared to other high school male students.

Method.—The names of 268 Washington State University students who had been presidents of men's organizations on the campus for the years 1957-58, 1958-59, and 1959-60 were secured and were designated as leaders. Further information about these students was secured by examining their high school transcripts.

The names of 414 nonleaders were secured by taking a 10 percent random sample of all male Washington State University students who were not presidents of groups during the 1957-58, 1958-59, and 1959-60 school terms.

A comparison of the two groups was made with respect to (1) the percentage who had studied vocational agriculture in high school, and (2) the number of high school credits earned in specific high school areas of study such as English, science, and mathematics.

Findings.—It was found that 30.9 percent of the leaders studied vocational agriculture in high school for an average of 3.3 years. Only 13.3 percent of the nonleaders received vocational agriculture training in high school. It was also found that the only significant difference between the courses taken by the vocational agriculture boys and the nonagriculture boys in high school was in the field of foreign language.

The author concludes that if a student takes vocational agriculture in high school he has a better chance to become a leader in college. If a student takes vocational agriculture in high school it does not mean that he will miss a significant amount of English, science, social studies, or mathematics. It is likely, however, that he will take less foreign language instruction.

3058. KLASSY, EDWIN H. An Appraisal of Service Awards in Vocational Agricultural Teaching Sponsored by Wisconsin Association of Vocational Agricultural Instructors Compared With the Other Continental States. Seminar Report, 1961, University of Wisconsin. 72 p. Department of Agricultural and Extension Education, University of Wisconsin, Madison.

Purpose.—To establish a history of the Wisconsin awards program including value of steps in operation, eligibility, criticisms, suggestions, and to make a comparison with other States.

Method.—All records concerning Wisconsin service awards were collected and assembled along with findings of related surveys and reading. The comparison of the Wisconsin program with the other 47 continental States was accomplished by sending a questionnaire to the secretaries of all the State associations.

Findings.—The Wisconsin Vocational Agricultural Instructors Service award presented in 1930 was the first of its kind in the United States. This first award was for 10 years of teaching (still given) and has been supplemented by the 20- and 25-year award in 1940 and 1955, respectively.

The Wisconsin awards program has changed considerably. The awards chairman and committee now administer the program formerly conducted by the State supervisor and committee. General agriculture teaching time is no longer allowed for awards. A year's credit is now allowed for a partial year of 6 months teaching. There is considerable interest in service awards nationwide. The programs vary considerably, but there are trends. The 10-year award level is most common, followed by the 20, 25, and 30. The association key is the most common award given, followed by a certificate, and the Sears watch.

Criticisms and suggestions in Wisconsin and throughout the nation follow the same trend, which is for a more valuable award at the 20-year level, and also for more award levels above the 25-year level, with appropriate awards presented for each.

3059. KREBS, ALFRED H. College Success of Students Enrolled in the College of Agriculture, University of Illinois. Nonthesis study, 1961, University of Illinois. Approximatley 20 p. Division of Agricultural Education, University of Illinois, Urbana.

Purpose.—To study the relationship between college success, as measured by college grades, and enrollment in high school vocational agriculture.

Method.—Data were secured from the permanent record cards maintained by the college of agriculture. The study included 836 male students who enrolled as freshmen during the years 1954, 1955, 1956, and 1957. Since the study was conducted during the spring of 1957, this would mean that at the time of the study some of the students were freshmen, some were sophomores, some were juniors, and some were seniors. Factors used in the analysis were college grades, college grade-point average, college major, decile ranking on a test of scholastic aptitude, dropout and transfer data, high school courses offered for admission, rank in high school class, and size of high school class.

Findings.—Continued enrollment in vocational agriculture in high school had little effect on the amounts of high school English, mathematics and science taken. Using rank in high school class as the criterion, the college of agriculture appeared to be getting a majority of its best students from among high school students taking two or more units of vocational agriculture. Although no significant relationship was found between units of credit in high school vocational agriculture and scholastic aptitude, students with the most credit in vocational agriculture tended to earn slightly higher average grades in college. For mathematics and science, there was a significant relationship between units of high school credit and scholastic aptitude, but there was no significant relationship between units of credit and college grade-point average.

The percentage loss of students from the college of agriculture was found to be the lowest for students with the most credit in high school science and vocational agriculture. The loss of students was greatest for the students with the most credit in high school mathematics.

3060. KREBS, ALFRED H. Occupations of Persons Living in an Illinois School District. Nonthesis study, 1961, University of Illinois. 13 p. Division of Agricultural Education, University of Illinois, Urbana.

Purpose.—To identify the agricultural occupations of persons living in a school district, and to determine the best procedures for making similar studies.

Method.—All residences were plotted on maps of the towns and the school district. The town and rural areas were divided into smaller units and worksheets were prepared. With the assistance of persons living in the school district, the occupations of the workers living in the district were recorded. Housewives and the unemployed were not included in the tabulations.

Findings.—Nearly half (48 percent) of the workers living in the school district were engaged in agricultural occupations or occupations requiring some knowledge of agriculture. Twenty-eight percent of the workers were engaged in agricultural production or in occupations closely related to agricultural production. Forty-seven percent of the persons engaged in agricultural occupations or occupations requiring some knowledge of agriculture lived in the city; approximately 16 percent of the persons engaged in nonagricultural occupations lived in the rural areas.

3061. LONG, ROBERT WILBURN. A Study of Council-Type Organizations in Community Development in North Carolina. Problem option, M. of Ag. Ed., 1960, North Carolina State College. 72 p. Library, North Carolina State College, Raleigh.

Purpose.—To analyze the structure and function of the council-type organizations in North Carolina and to accumulate information that could be used in future development of council-type organizations.

Method.—A survey of four communities in North Carolina which were organized on a council-type basis was made. Each community was visited and the information obtained from persons selected by the county agricultural extension workers. The respondents were interviewed personally by the researcher and the information was recorded on a questionnaire form.

Findings.—This study indicated that community development in North Carolina is a process by which people of a community determine their needs and problems, find resources for meeting needs and solving problems, and work to develop the potentials of the individual, the family, and the community. Some type of organization is needed to accomplish the objectives of community development and in large communities with several existing organizations the community council seems to be the best type of organization to use.

The study indicated that the following information should be considered in the organization and operation of a council:

1. Although communities have needs and problems, it is often necessary that someone with organizational skills and information assist the local people in initiating a community organization. These people very often are professional agricultural workers who may or may not live in the community.
2. Every major subgroup in the community should be represented on the council.
3. The officers of the council should be capable leaders who are accepted by the community.
4. A council should have definite goals and objectives.
5. Committees are needed to study, make recommendations, and coordinate action on projects.
6. If goals are based on needs of the community and the exchange of ideas and information between the council and the other people of the community is encouraged, only a small number of persons is necessary for actual planning and policymaking.

3062. MACOMBER, FLOYD D. Performance Comparisons Between Vocational Agriculture Students and Nonvocational Agriculture Students in the Four-Year Program of the College of Agriculture at Cornell University. Essay, M. Ed., 1961,

Cornell University. 30 p. Library, Cornell University, Ithaca.

Purpose.—To compare the scholastic achievement of two groups of students, those who offered six units of vocational agriculture upon entrance to college and those who offered the traditional college entrance program.

Method.—The records of entering students of the College of Agriculture in 1954 and 1955 were analyzed to obtain names of students who graduated from rural New York State high schools and who had either been farm reared or had enough farm experience to pass the Cornell University Farm Practice Requirement upon admission.

The names were classified into two groups, those who had at least six units of vocational agriculture in high school and those who did not. Members from both groups were paired according to scholastic aptitude as measured by the Ohio State Psychological Test, amount of farm experience, and year of entry to Cornell. The matching process resulted in 50 pairs of students, equal in the factors mentioned above but different in their high school curriculum.

The scholastic achievement of these paired students in three broad categories of study, mathematics and science, technical agriculture, and all college subjects, was compared using the "t-test" of significance.

Findings.—The average grade earned by the vocational agriculture group was 73.3 in mathematics and science, 79.9 in technical agriculture, and 76.6 in all college subjects whereas the control group had grades of 73.7, 79.2, and 76.1 in comparable areas. In no case was any difference statistically significant.

No statistical difference was found between the groups in the number of credit hours earned in each of the three broad categories of study. Certain other factors were compared concerning scholarships earned, extracurricular activities engaged in, and number of students graduating, transferring or leaving school. These comparisons showed very little or no difference between the two groups.

The researcher concluded that a high school student interested in going to a college of agriculture may well be counseled into taking vocational agriculture during his entire 4-year program. The author further concluded that college students who studied vocational agriculture during their 4 years in high school are not handicapped in their college studies for having done so.

3063. MATALAMAKI, WILLIAM. The Role of the University of Minnesota's North Central School of Agriculture in the Future Educational Picture of Northeastern Minnesota. Thesis, Ph. D., 1960, University of Wisconsin. 186 p. Library, University of Wisconsin, Madison.

Purpose.—This study attempts to uncover the area or areas of educational service that should be assumed by the school under study so that it might make the greatest possible contribution to the advancement of northeastern Minnesota. (The author is the administrator of one of the nine remaining secondary schools of agriculture operated by State universities in the United States. Ninety such schools have been in existence during the past 75 years.)

Method.—Data were collected from the following eight groups with a greater than average knowledge of and interest in the North Central School of Agriculture, which has been designated to serve the 18 counties in northeastern Minnesota: (1) All the male agricultural extension agents in the area; (2) all the vocational agriculture instructors working in the public schools of the area; (3) all the public school superintendents located in this area; (4) the entire 1958-59 student body of the school under study; (5) the parents of all the students attending the school in 1958-59; (6) a 20 percent sample of the 500 graduates of the school; (7) a random sample totaling 180 farmers living in the school's service area; and (8) a stratified random sample of 120 Grand Rapids business and professional people.

The survey schedules were designed to draw out two general categories of information: (1) Background information on the group being surveyed; and, (2) data that would help resolve the prime objective of the study. Each group was analyzed individually and the results of all eight surveys were then summarized for projection purposes.

Findings.—Following is the summary of 792 opinions concerning the future of the North Central School of Agriculture as expressed by the eight groups surveyed:

		Percent
1.	Continue operating on the same basis as at the present (a secondary school for boys with special emphasis on agriculture and related subjects)	37.2
2.	Operate as an area vocational School	21.8
3.	Train high school graduates on a terminal noncollege credit basis	11.0
4.	Add training for girls on the same basis as boys are now trained	10.4
5.	Transform the school into a 2- or 4-year liberal arts college	10.2
6.	Establish a practical forestry course on a post high school level	8.2
7.	Other choices	.8
8.	Close the school entirely	.2

The study revealed three significant factors. First, all groups without exception, were extremely well satisfied with the past and present performance of the school. Second, fewer than 50 percent of all groups studied felt the school should continue operating on its present basis, and third, no group definitely pointed to the area where the school could make its greatest contribution to the educational functions of the area.

The data does point to a changing function in the direction of post high school technical training. Building on this evidence the author proposes a gradual termination of the secondary training program by dropping one class per year and substituting units of post high school vocational training as facilities and space become available. This program will be augmented with a comprehensive plan of adult education geared to the present day needs of the area.

3064. McClay, David R. Preemployment Experience of Graduates in Agricultural Education as Related to Tenure in Teaching Vocational Agriculture. Staff study, 1961, The Pennsylvania State University. 20 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose.—(1) To determine the relation of precollege educational, occupational, and family experience background of students in agricultural education to college performance; (2) to relate precollege and college experience to tenure in teaching vocational agriculture; and (3) to compare the results with the findings of similar studies made in 1933, 1943, and 1953.

Method.—A questionnaire was sent to the 235 graduates in agricultural education in the 5-year period from 1954 to 1959. There were 202 graduates who completed the questionnaire. Data were tabulated and compared with the results obtained in the three previous studies.

Findings.—Graduates of the 5-year period ending in 1959 were similar to those of the three earlier studies in the percentage that were farm reared (81 percent), in the percentage that made the decision to teach before entering college (66 percent), and in their scope and variety of secondary school extracurricular activities. The all-university grade-point averages for students in the four periods were 2.44, 2.66, 2.79, and 2.67, respectively.

The mean percent of potential teaching years devoted to teaching was lower for the 1954–59 group (53 percent compared with 76 percent for the 1944–53 group).

Approximately one-half of the graduates who taught had received high school training in vocational agriculture. There appeared to be no relationship between having been graduated from vocational agriculture or from other high school curriculums and the teaching of agriculture following college graduation.

No significant correlation was found between the amount of mathematics obtained in high school and subsequent all-university average. Correlation of 0.26 was found between academic achievement in high school and in college. There appeared to be no relationship between secondary school curricula completed by the graduates and all-university average at time of graduation.

3065. Miller, Melvin Dee. Principles of Organizing Adult Farmer Classes in Agriculture in Oregon. Thesis, Ed. M., 1961, Oregon State University. 71 p. Oregon State University, Corvallis.

Purpose.—To establish principles that should be observed in the organization of adult classes in agriculture in Oregon.

Method.—Data were secured from questionnaires given to farmers enrolled in adult classes in agriculture in selected centers throughout Oregon. Information was gathered from the 12 Western States as to principles of organization for adult classes in agriculture that were in present use within that State. Key leaders in Oregon—State supervisors, teacher trainers, and vocational agriculture teachers—were interviewed to determine present practices and feeling. This study was limited to the organizational phase of adult classes in agriculture in Oregon which are offered as a part of the local public school system. Reviews of current publications are a part of the completed study.

Findings.—A list of 14 guiding principles to be followed in the organization of adult farmer classes are identified as a result of the completed study. Principles of organization are:

1. Adult farmer programs should be offered as a part of the total school program in the community.
2. A long-range series of adult farmer classes should be planned for the community's farmers.
3. Advisory councils should be used in organization planning.
4. Course planning should be aimed at the interests and needs of farmers.
5. A designated adult farmer program director should be responsible for the organization of such programs.
6. Followup instruction should be provided in the course plan for adult farmer classes.
7. Limitations on the number of classes that can be properly supervised by one supervisor or part-time supervisor should be adhered to.
8. Course outlines should be set before classes first meet.
9. Classes for adult farmers should be offered for which cost sharing is not approved under the present Federal-State plans.
10. Adult farmer classes should be open to any full- or part-time farmer.
11. The adult farmer supervisor should plan on providing teacher training for teachers of adult farmer classes.

12. Adequate publicity is essential to obtaining sufficient enrollment for adult farmer classes.
13. Course offerings should be planned to coincide as closely as possible with the lightest work schedule of the enrollees.
14. Limits on enrollment should be set for adult farmer classes.

3066. MOECKEL, ROLF E. The Effectiveness of Practices of Individual On-Farm Instruction Used by Teachers of Adult Farmer Courses in Michigan. Thesis, Ed. D., 1960, Michigan State University. 201 p. Library, Michigan State University, East Lansing.

Purpose.—To study the practices of individual on-farm instruction of adult farmers to determine: (1) The frequency of their use by Michigan teachers; (2) the evaluation of the instructional effectiveness of the practices by the teachers; (3) some new or promising practices that might be used more widely in Michigan; and (4) the effectiveness of certain promising practices from teachers who used them on a demonstrational basis.

Method.—A survey with a checklist of 125 practices was taken among all Michigan teachers of adult-farmer courses during 1957-58. This checklist was returned by 108 teachers, or 78.2 percent. A survey with the checklist was also made of outstanding teachers of on-farm instruction of adult farmers from 13 States of the central region, as selected by head State supervisors of each State, with 56 replies, or 80 percent returns. These two groups were statistically compared to determine promising practices that were being used more frequently and evaluated to a higher degree by the outstanding teachers. Ten of these promising practices were then used on a demonstrational basis by Michigan teachers during 1958-59, after which they gave a detailed evaluation of the practices.

Findings.—Michigan teachers had an average of 5.9 years of experience in teaching adult farmer courses, with an average of 56.3 individual on-farm visits made to adult farmers per year. The average number of visits made by the outstanding teachers of the central region was 92 per year. Thirty-eight practices from the checklist of 125 were used more frequently and evaluated higher by the outstanding teachers of the central region as compared with the Michigan teachers.

The promising practices that were demonstrated by the Michigan teachers were selected as having the following advantages by a majority, or more, of the teachers using them.

1. Maintain a list of potential farm visits to be made to adult farmers. Advantage—used teacher's time economically.
2. Assist the adult farmer to conduct trial plots on the farm. Advantages—farmers responded well to its use, learned more, and adopted more farm practices.
3. Analyze with the adult farmer the instruction of a previous adult class as it is related to his own farm. Advantages—farmers adopted more farm practices, responded well to its use, and learned more.
4. Analyze the adult farmer's D.H.I.A., soil test, or other farm records. Advantages—farmers responded well to its use, adopted more farm practices, and learned more.
5. Use local production standards to assist the adult farmer to evaluate his business. Advantages—farmers responded well to its use and adopted more farm practices.
6. Take colored slides or snapshots of approved practices being adopted by the adult farmer to show the "before" and "after" situation. Advantages—improvement of class instruction, farmers responded well, and learned more.
7. Survey adult farmers during class to determine their viewpoints concerning farm visits. Advantage—farmers responded well to its use by the teacher.

3067. MOON, FRANK ANDREW. An Analysis of Farm Machinery Selection and Management. Nonthesis study, 1960, University of Minnesota. 34 p. Library, Departemnt of Agricultural Education, University of Minnesota, St. Paul.

Purpose.—To conduct an analysis of farm machinery selection and management for use by vocational agriculture instructors in farm management instruction.

Method.—A farm in southwestern Minnesota was selected as being representative of the farming area. The farm owner-operator was interested in developing a power and machinery plan that would satisfy the needs of his farm, and make the best possible use of his available capital and labor.

Data were gathered about crop acres, yields, and rotations; weather and growing season; soil type, texture, and topography; and the capital and labor available.

Machine sizes were determined according to time available for performing each operation. The fixed and variable power and machinery costs were determined for the individual operations of each crop produced on the farm. The total per acre and per unit costs were calculated on the tillable crop acres and crop yields.

Findings.—Most of the machinery required for the 240-acre farm is somewhat smaller than the small machines available on the market today. It was found that nearly all crop operations could be custom-hired cheaper than the operator could do them if he owned all the necessary equipment, assuming machines are available for custom-hire.

However, by owning all of the necessary machinery the operator can create a job for himself. The crop work added to the livestock program will provide year-round employment with a comfortable income. There will be fewer farms available for rent in the future if retired owners can custom-hire all of their work performed and make more money than renting on a cash or share basis. Managing the farm business would still require considerable time if maximum profit is to be shown.

Further study is suggested in the areas of used machinery vs. new machinery; diesel, gas and L.P. tractor comparisons; and multiple ownership of machinery.

3068. MOON, FRANK ANDREW. An Illustration of the Procedure for Analyzing a Farm Business To Determine the Kinds and Amounts of Farm Machinery Needed for the Operation of the Farm Business. Thesis, M.A., 1960, University of Minnesota. 99 p. Library, University of Minnesota, St. Paul.

Purpose.—To illustrate a procedure for analyzing a farm business to determine the kinds and amounts of farm machinery needed for the operation of the business.

Method.—Available literature, concerning farm machinery was reviewed to determine the general factors of machinery costs. A representative farm was then selected in Lyon County, Minn., for an analysis of the farm business to determine the selection and management of the farm machinery. Data were gathered concerning crop acres, yields, and rotations; weather and growing season; soil type, texture, and topography; and the capital and labor available.

Findings.—The following factors were determined to be important factors to be considered when buying a machine: Fixed costs, variable costs, related costs, size of machine, new versus used machinery, owning versus custom-hiring, renting machinery, when to trade, and multiple ownership of machinery.

From the analysis of the selected farm, it was found that most of the machinery required for the 240-acre farm is somewhat smaller than the small machines available on the market today. It was found that nearly all crop operations could be custom-hired cheaper than the operator could do them himself and own all of the necessary equipment, assuming machines are available for custom-hire.

By owning all of the necessary machinery the operator can create a job for himself. The crop work added to the livestock program will provide year-round employment with a comfortable income. There will be fewer farms available for rent in the future if retired owners can custom-hire all of their crop work performed and make more money than renting on a cash or share basis. However, managing the farm business would still require considerable time if maximum profit is to be shown.

Further study is suggested in the areas of development of rules of thumb for fitting machinery to a farm, new versus used machinery, reduction of operating costs through improved maintenance, extent of the availability of custom-work and custom-hiring, and the use of figures from farm management cooperator's record book to equip the operator's farm with the proper machinery.

3069. MORTIMER, DUANE D. Viewpoints Regarding Vocational Agriculture in the Public Schools as Held by Wisconsin Secondary School Principals. Thesis, M.S., 1959, University of Wisconsin. 106 p. Library, University of Wisconsin, Madison.

Purpose.—To discover the viewpoints of Wisconsin school administrators regarding vocational agriculture and the Future Farmer program as it exists in Wisconsin high schools.

Method.—The method used in conducting the study was to survey all the school adminisrtators in Wisconsin in whose schools vocational agriculture is being taught. The opinionnaire was sent to 279 secondary public schools. A reply was received from 216, or 77 percent. The data upon which this study was based were collected by means of an opinionnaire designed (1) to obtain personal data regarding size of school, experience of administrator and position of administrator, and (2) to obtain opinions of school administrators regarding the vocational agriculture and the Future Farmer program.

The administrators were asked to express their agreement or disagreement to 44 statements of opinion. These statements involved such areas as vocational agriculture as a part of the all school program, administrative policy in respect to the vocational agriculture program, professional standards of the agriculture teacher, departmental practices, Future Farmer program, and new developments in vocational agriculture.

Findings.—Although opinions varied according to size of school and position of administrator, there was enough similarity of opinion that some definite conclusions could be reached. They thought vocational agriculture should be a part of the total school program deserving of equal status with other subjects in the curriculum. However, it should not become a separate entity. They indicated a strong interest in a good job of instruction with a well-planned program. This should include instruction in farm shop, and this instruction should be carried to the farm with more supervised visits and well-planned field trips.

Wisconsin administrators favored the conducting of young and adult farmer classes and were strong advocates of active Future Farmer chapters.

The administrators had high regard for the professional training of the agriculture teacher. They want him to continue to improve himself professionally. A sizable percentage question full-time summer employment of the agriculture teacher. Most administrators thought the workload of the vocational agriculture teacher was no greater than for other staff members. Herein lies a problem for vocational agriculture. Although agriculture teachers are trained in the area of communication, some do a poor job of selling their program to school administrators and other staff members.

Vocational agriculture teachers have not familiarized their administrators with such things as the use of advisory councils, need for establishment of nonvocational agriculture courses, and what the trend is for enrollment because of the decrease in farm families.

The study revealed that basically school administrators, regardless of size of school or position held, think quite favorably of the vocational agriculture program.

3070 NELSON, THEODORE M. The Occupational Status of Minnesota Farm Male High School Graduates. Thesis, Ph. D., 1961, University of Minnesota. 174 p. Library, University of Minnesota, Minneapolis.

Purpose.—To examine the movement of farm male high school graduates into the labor market and their post high school educational activity over a 6-year period. Types of training, entry jobs, occupational mobility, and employment patterns were studied.

Method.—The sample consisted of 453 farm male high school graduates from 70 high schools in southern Minnesota. The study consisted of two phases; one descriptive, the other analytical. The descriptive phase characterized occupational placement of the graduates 6 years after graduation. Two occupational areas were examined, farm and nonfarm, along with the post high school educational activity of the graduates. The analytical phase examined factors in home and environmental backgrounds of the graduates believed to be related to or to differentiate between those choosing farm, nonfarm occupations, as well as factors associated with the selection of post high school educational activity.

Findings.—Six years after high school graduation three-fourths of the graduates were in nonfarm occupational activities including military service and educational programs. Half of those farming were on the home farm; the remainder on farms away from home but generally within their home community.

The majority of those leaving the farm left within 3 years of graduation. Of this group less than one-fourth indicated they were employed in occupations they had planned on entering at the time of high school graduation.

Less than one in three attended some form of post high school educational activity during the 6-year period under study. Rural males attend post high school educational activities less frequently than their urban counterparts.

Economic factors and participation in rural oriented activities are associated with those high school graduates remaining in farming.

High school rank, educational level of mothers and participation in rural-oriented activities of graduates were associated with post high school educational activity.

The major portion of rural youth must seek employment in urban areas. Additional training must be encouraged for these youth. Since those farming tend to remain in their home communities, continuing programs of vocational agriculture, young farmer and adult farmer education are suggested.

3071. NEWTON, MELVIN F. Factors Influencing the Occupational Choices of Farm-Reared Male Graduates of Newton High School. Thesis, M.S., 1961, Iowa State University of Science and Technology. 89 p. Library, Iowa State University of Science and Technology, Ames.

Purpose.—To determine the factors influencing occupational choices of farm-reared male graduates of the Newton, Iowa, High School.

Method.—Graduates for the years 1940 through 1955 whose school record listed their fathers' occupations as farming were used in the study. Information was obtained from questionnaires returned by the graduates and from the school records.

Findings.—Information was obtained on 194 graduates. According to this information the graduates were employed as follows: Farming, 38.04 percent; farm-related occupations other than farming, 17.39 percent; and occuaptions not related to farming, 44.57 percent.

Those who had enrolled in high school vocational agriculture included 74.23 percent of the graduates. Of these, 74.31 percent completed more than five semesters of study.

Vocational agriculture was found to have a significant effect on the graduates occupational choices. Graduates with more than five semesters of vocational agriculture training chose farming and farm-related occupations more often than would be expected. Of those who had completed five or more semesters of vocational agriculture, 48 percent were in farming.

In studying home-related characteristics, the following observations were made: (1) Graduates from larger farms tended to enter agricultural and kindred occupations to a greater extent than did graduates from smaller farms; (2) graduates whose parents were farm owners tended to enter professional and managerial occupations to a greater extent than did graduates whose parents were renters; (3) graduates whose fathers ranged in age from 45 to 64 years of age tended to enter farming to a greater extent than did those whose fathers were either younger or older; (4) graduates with the most siblings tended to enter farming to a lesser extent than did graduates with fewer siblings; and (5) graduates reporting mothers with higher educational achievement tended to enter occupations other than farming.

When high school characteristics were studied, the following results were noted: (1) Higher ability graduates, as measured by class rank and IQ, tended to choose occupations not related to farming; (2) graduates supervising workers in their present occupations tended to have participated to a greater extent in high school activities; (3) graduates who had not enrolled in vocational agriculture in high school tended to rank higher in their graduating classes and to report more college attendance than did those who had enrolled; (4) graduates reporting vocational agriculture training as valuable in their present occupations tended to be those who had completed five or more semesters of vocational agriculture; and (5) graduates who reported a knowledge of farming as essential in their present jobs tended to value their vocational agriculture training to the highest degrees.

Marriage to local girls and to farm-reared girls had highly significant relationships to the graduates' choices of location and choices of farming occupations, respectively.

Of the 194 reporting, 38.66 percent reported college attendance, and 23.20 percent reported the completion of 4 years or more. Those with 2 years or more of college education tended to choose occupations not related to farming.

Military service was reported by 65.46 percent of the respondents but was found to have no significant relationship to the graduates' choices of farm-related or non-farm-related occupations.

3072. NOLAN, MAXCY PEARLE. Problems and Interests of Young Farmers in School District Number One, Florence County, South Carolina, With Implications for an Educational Program. Thesis, M.S., 1961, Clemson Agricultural College. 87 p. Library, Clemson Agricultural College, Clemson.

Purpose.—To secure data which could be used in setting up a training program in vocational agriculture for young farmers living in School District No. 1 of Florence County, S.C.

Method.—Data were collected through interviews and recorded on an appropriate form.

Findings.—The average age of the 50 young farmers was 25.8 years. Sixty-four percent of them were married and averaged slightly less than two children per married young farmer. Only 24 percent of the respondents were educated beyond the high school level; however, all of them enjoyed a relatively high level of living.

The respondents received more than 75 percent of their income from farming and indicated they liked farming. Practically all of them planned to continue to farm and desired to attend young farmer meetings led by the teacher of agriculture.

Interest in subject matter areas was varied, including locally grown crops and livestock enterprises. The respondents showed particular interest in farm management problems. Most of the respondents indicated several sources of information which they used to assist them in solving problems. The young farmers were also interested in learning shop skills in the vocational agriculture farm shop.

3073. NUTT, DENNIS WADE. A Follow-up of the Former Students of Vocational Agriculture in Maury County, Tennessee. Thesis, M.S., 1960, University of Tennessee. 78 p. Library, University of Tennessee, Knoxville.

Purpose.—To determine (1) The present occupations of students graduating during the period 1949-59; (2) the tenure status of those who were engaged in farming; (3) the reason for the graduates not entering the farming occupation; (4) the influence of vocational agriculture on choice of occupation; (5) which phases of vocational agriculture were most beneficial to the former students; (6) the changes which seem desirable in the Maury County vocational agriculture program.

Method.—A list of 200 former students of vocational agriculture who graduated during the period 1949-59 was secured from the offices of principals of the six Maury County high schools. A questionnaire was prepared and mailed to some of the former students, and the investigator interviewed some of the former students. The study was based on replies from 121 former students, 86 by mail and 35 by personal interview.

Findings.—(1) *From the questionnaire:* The graduates were engaged in 19 different occupations. Those listed most frequently were farming, 25 percent; laborer, 17 percent, military service, 14 percent; and electricians, 9 percent. Of those farming, 54 percent were sharecroppers; 19 percent, owners; 19 percent, wage earners, and 8 percent, renters. For farming agreements, 46 had oral; 15 percent, written; and 39 percent, none.

Reasons given for not entering farming: Preferred something else; income too low; lack of land, prevalence of small farms in community, and too many brothers.

Extent vocational agriculture helped graduates select an occupation: *Much,* 31 percent; *some,* 40 percent; *little or none,* 28 percent.

Value from agricultural instruction was ranked in importance as follows: Shop skills, livestock production, farm mechanics, crop production, and farm management.

(2) *From those interviewed:* Almost three-fourths of the graduates indicated the major objective of vocational agriculture should be broadened to include occupations allied with farming. Over one-third indicated that vocational agriculture students could carry on satisfactory farming programs through farm placement. The home farm was selected by 43 percent. Seventeen percent stated that the school should buy a farm for students to secure supervised training.

The graduates listed the following activities they liked in vocational agriculture: Shopwork, field trips, and FFA activities.

They had held these leadership positions: Teacher; speaker; public relations work; reporter, treasurer, secretary and president of an organization; and factory foreman.

Sixty-nine percent felt that vocational agriculture training should extend beyond high school.

The following changes were recommended by those interviewed: Include more shopwork, more instruction in occupations allied with farming, more field trips, more emphasis on farm study production, farm management, and farm mechanics.

3074. **Oleson, James Edward.** **A Pilot Study in Methods for Improving the Attendance and Curriculum for Adult Farmer Classes in the Highland High School Service Area. Thesis, M.S., 1961, University of Wisconsin. 94 p. Department of Agriculture and Extension Education, University of Wisconsin, Madison.**

Purpose.—To determine the farm background and level of education of the adult farmer, the types of activities in which farmers participate, ways in which adult farmer classes can be improved, methods of increasing enrollment, and to study the curriculum now carried on.

Method.—Personal interviews were made by the author of 50 farmers in the Highland High School service area. Twenty-five of the farmers in the study were selected at random from a prepared list of adult farmers enrolled in the adult farming program. The remaining 25 farmers were selected at random from a list of farmers who had no previous record of attendance in the program.

Findings.—(1) Personal contact by the teacher, as well as circular letters or postal cards, were found to be the best means of acquiring attendance. (2) Advisory council, although not used, could be an aid in acquiring attendance. (3) More contacts could be made to get the group of nonparticipators who said they were undecided in the future to join the adult farmer class. (4) The telephone, although used very little, could be used more frequently in contacting adult farmers. (5) Although winter months were the only months in which meetings were held, spring and fall could also be used. (6) The teacher determined what subjects would be taught. However, more farmer participation should be encouraged. (7) Teach more farm law, farm machinery, electricity, carpentry, and farm accounts. (8) Meetings should be held for the wives. These meetings could be conducted by the home economics teacher or the home extension agent. (9) More communication between the teacher and the farmers was needed. (10) Other activities or clubs being held at the same time, television, conflicting personalities, and lack of communication accounted for the decrease in number of farmers attending the adult-farmer meetings.

3075. **Parrish, Joseph Edward.** **An Appraisal by Graduates of the Secondary Curriculum of the Caldwell Exempted Village School. Thesis, M. Sc., 1961, The Ohio State University. 78 p. Library, the Ohio State University, Columbus.**

Purpose.—To determine the weakness in the curriculum of the Caldwell Exempted Village High School and to suggest methods of improvement.

Method.—The necessary data were secured by means of a questionnaire mailed to 1953, 1954, 1955, and 1956 graduates of Caldwell High School. Information required to complete the questionnaire included the respondent's present occupation, training completed since leaving high school, future plans, evaluation of subjects taken in school, need for and source of guidance and suggestions for improvement of the school. The data from the completed questionnaires were tabulated to give a picture of the evaluation of the educational experiences of the classes included in the study.

Findings.—The study revealed:

1. Two-thirds of the respondents had taken no training beyond high school.
2. Seventeen percent completed at least 4 years of college.
3. Home economics was considered most valuable of the high school subjects, followed by English and mathematics.
4. Latin was disliked and considered least valuable by most of the respondents.
5. The suggestion for improvement mentioned most frequently was a more adequate guidance program.

6. Other suggestions, in order of frequency of appearance on the returned questionnaires, included: More vocational education; more school clubs; more emphasis on English composition; offer more subjects, especially French and Spanish; and increase emphasis upon intermural athletics.

3076. PATEL, AMBOOBHAI U. Applicability of Principles of Supervised Farming Programs in Teaching of Agriculture in the High Schools of Gujarat State, India. Thesis, Ph. D., 1961, Cornell University. 266 p. Library, Cornell University, Ithaca.

Purpose.—(1) To determine the applicability of principles of supervised farming programs in teaching agriculture in the high schools of Gujarat State as viewed by principals, agricultural teachers, parents, and students of agricultural high schools; (2) to determine difficulties that might be encountered in applying these principles in teaching agriculture in high schools; and (3) to compare, for certain basic principles, opinions of the above groups and to determine whether or not the differences in opinions within and between groups could be attributed to some of their characteristics.

Method.—Principles of supervised farming programs were developed from a detailed review of literature. Opinions on the applicability of the principles and the difficulties encountered were obtained through questionnaires from four groups.

Findings.—In general, all the concepts of supervised farming programs studied in this investigation were considered applicable in Gujarat. Principals, teachers, parents, and students felt that the supervised farming program of a student should: (1) Provide him with the opportunities to learn by participating in farming activities; (2) have educative value which is to train him for proficiency in farming; (3) be supervised by his agricultural teacher and parents; (4) be carefully planned by student, his agricultural teacher, and parents; (5) provide him with the experiences of the whole farm; (6) be based on his needs, capabilities, interests, and opportunities for farming; (7) provide him with the opportunities to earn and acquire equity; (8) grow out of the course of study; (9) continue, expand, and improve from year to year; and (10) contribute to the welfare of the home farm.

Both the project concept and whole-farm concept were usable, both on the school farm and the home farm.

The difficulties that might be encountered in the application of the principles were concerned with the problem areas as follows: Shortage of properly trained agricultural teachers, need for some change in the present policy of school administration and the policy of curriculum planning, traditional attitudes of parents, and shortage of money, land, equipment, and materials both on the school farms and the home farms. However, most of these difficulties were stated by only a few persons in each group.

The comparison of the responses of various groups showed that, in general, principals and teachers differed from parents and students in their opinion about the use of the school farm, the home farm, the project concept, and the whole-farm concept. More parents and students than principals and teachers felt that the home farm would be more suitable place than the school farm and the whole-farm concept would be more suitable than the project concept in providing the students with practical farm experiences.

3077. PIERCE, DEWEY. The Relation of Vocational Agriculture Experience to Scholastic Achievement at The Ohio State University. Dissertation, Ph. D., 1960, The Ohio State University. 247 p. Library, the Ohio State University, Columbus.

Purpose.—To determine the college success of students having vocational agriculture in high school who enrolled as freshmen in one of the five undergraduate colleges at The Ohio State University from 1946 to 1955.

Method.—This study included 800 male Ohio high school graduates, 400 with and 400 without vocational agriculture. Names of the students with vocational agriculture were obtained from census cards in the office of the registrar and were pair-matched with the students without this experience on the basis of the *Ohio State Psychological Examination* and of age at time of entering college by a random sampling procedure. Records of students over a period of 12 college quarters were studied.

Findings.—Students with vocational agriculture did as well as students without such training, measured by mean cumulative point-hour ratios. No statistically significant difference at the 1-percent level of confidence on the test was found between the 12th-quarter mean cumulative point-hour ratios of the two groups. The mean cumulative point-hour ratios of the vocational and nonvocational agriculture groups respectively were determined: 2.63 and 2.51, five undergraduate colleges; 2.66 and 2.58, agricultural college; 2.59 and 2.41, the four nonagricultural colleges. No statistically significant difference at the 1-percent level of confidence was found between sons of farmers and of nonfarmers at the end of the 12 quarters in both groups. No statistically significant difference at the 1-percent level of confidence was found between the mean point grades in 19 selected subject areas completed by students with and without vocational agriculture in the college of agriculture and home economics.

Generally, students without vocational agriculture completed more years of high school chemistry, English, mathematics, and physics than did those students with this experience. The average number of years of selected high school subjects completed by the vocational and nonvocational agriculture students, respectively, in the five undergraduate colleges, was 0.65 and 0.73, chemistry; 3.5 and 3.6, English; 1.9 and 2.5, mathematics; 0.55 and 0.63, physics.

Among other things it was found that students in the upper one-third of their high school classes made a higher mean cumulative point-hour ratio in college than did those students in the middle one-third and lower one-third of their high school classes, and that little or no apparent relation existed between scholastic achievement and age when entering college or size of high school attended.

3078. Pinnock, Theodore J. A Situational Analysis of Adult Education for Negroes in Macon County, Alabama. Thesis, M.S., 1960, Tuskegee Institute. 140 p. Library, Tuskegee Institute, Tuskegee.

Purpose.—To analyze Macon County, Ala., in order to gain insight to serve as the basis for planning and establishing immediate and long-term adult education programs by Tuskegee Institute, the public schools, and other organizations and agencies willing and able to assist.

Method.—Two interview schedules were employed to secure detail data from 11 schools and 22 organizations and agencies within the county and two questionnaire forms were used to secure data from over 1,000 individuals residing in the county.

Findings.—Every institution, organization, and agency participating in this study identified itself to some degree with adult education activities. Without exception, representatives of these institutions, organizations, and agencies expressed the opinion that an adult education program at Tuskegee Institute should be the hub around which all adult education activities in the county would revolve.

Lack of proper orientation, effective organization, and capable leadership in the area of adult education were the basic problems reported by the institutions, organizations, and agencies participating in the study.

Adults participating in this study have implicit confidence in the churches of the county.

In their respective communities high schools and elementary schools receive requests from hundreds of adults asking for assistance in the solution of numerous problems. The staffs of these institutions, however, do not have the time to do an effective job; in many instances they are not as well qualified to assist as they would like to be.

Each interviewee expressed the opinion that social, economic, and intellectual rebirth of this county is dependent upon positive action taken by Tuskegee Institute, the churches, high schools, elementary schools, Tuskegee Veterans Administration Hospital, civic and community leaders in the area.

3079. Probasco, Peter Merle. Practices Used by Selected Minnesota Vo-Ag Teachers in the Adult Farmer Program. Colloquium paper, M.A., 1961, University of Minnesota. 110 p. Library, Agricultural Education Department, University of Minnesota, St. Paul.

Purpose.—To identify practices which have been used in successful vocational agriculture adult farmer programs.

Method.—The writer obtained the names of 20 vocational agriculture instructors in Minnesota recommended by the State supervisor of agricultural education as having successful adult farmer programs. Each instructor completed an opinion questionnaire which was mailed to him. He also supplied the names of five farmer members of his class. Questionnaires were mailed to these class members to determine the practices and policies they considered most important in the operation of their adult farmer programs.

Findings.—The majority of the responses indicated:

1. The farmer's wife should be included in the program.
2. More than one class is necessary; for example, one group may be organized for intensive study of swine management while another group has a series of instructional periods on soils management; instruction should not be devoted to farm mechanics exclusively.
3. Members averaged 5.5 years in attendance; they enjoyed the classes and planned to continue attendance as long as they could benefit from the program.
4. The class members thought the program had a definite dollar value to them and more farmers should participate.
5. Classes generally were held in one central location, usually the school.
6. The farmers did not consider definite enrollment essential; the instructors did.
7. Certificates or diplomas should not be awarded at completion of a series of classes.
8. Success of programs is not determined by size of enrollment.
9. Members should participate in planning and have a better understanding of operation and policies of the program.

10. Personal contact by both teacher and class members is the most effective method of recruitment and publicity.
11. Even in multiple-teacher departments, only one instructor participates in the adult program; over 40 percent of the instructors and class members did not consider it necessary to employ a full-time adult instructor in their school.
12. Instructors enjoyed working with adult farmers better than with the high school student.

3080. PUMPER, FRED J. High School Background and Student Success in the College of Agriculture at the University of Wisconsin. Thesis, M.S., 1961, University of Wisconsin. 146 p. Department of Agricultural and Extension Education, University of Wisconsin, Madison.

Purpose.—The primary purpose was to compare how well high school vocational agriculture students succeed in college as compared to students who have not taken high school vocational agriculture. Among the nine purposes were a comparison of grade-point averages, and achievement in selected courses.

Method.—Students who enrolled in the college of agriculture as new freshmen (1952–56) were studied, totaling 737. Data were obtained from the dean of instruction and the records of registrars. They were analyzed by chi-square using the numerical analysis laboratory facilities.

Findings.—Farm students numbered 55.8 percent, and 38.4 percent were nonfarm students. There were 52.8 percent who did not have any high school vocational agriculture, and 47.2 percent had from 1 to 4 years of vocational agriculture. Of the vocational agriculture students 74 percent were from farms and 26 percent were nonfarm students; while 13.6 percent of the nonfarm students had vocational agriculture in high school and 87.6 percent did not.

Of the students who entered the college of agriculture, 41 percent had graduated when the study was completed. Sixty-seven percent of the students in the college of agriculture were in the top half of their high school graduating class. When the ability levels were held constant, 64.7 percent of the vocational agriculture students with high ability graduated compared to 42.2 percent of the nonagriculture students. Over 11 percent more vocational agriculture students graduated at the medium and low ability levels than the nonagriculture students.

Fifty-one percent of the farm students graduated as compared to 29.7 percent of the nonfarm students from the college of agriculture. Of the vocational agriculture students, 53.9 percent of those from the farm graduated compared to 37.1 percent of the nonfarm. The vocational agriculture students had a higher grade-point average than the nonagricultural students at graduation, and this held true when the ability levels were held constant.

Vocational agriculture, nonagricultural, farm, and nonfarm students were compared in the following selected courses: Agricultural economics 4, agronomy 1, animal husbandry 1, bacteriology 1, chemistry 1a, chemistry 5, chemistry 1b, economics 1 or 1a, English 1a, English 1b, and American history. At the 5-percent level of significance the vocational agriculture students achieved at a higher level in agronomy 1, animal husband 1, chemistry 1a, and chemistry 1b than the nonagricultural students; the farm students achieved at a higher level in agronomy 1, animal husbandry 1, chemistry 1a, and chemistry 5 than the nonfarm students. There was no difference in the achievement of the nonagricultural students, and the agricultural students, the farm and nonfarm students in the other selected courses.

Alpha Zeta membership was attained by 5.1 percent of the nonagriculture students to 10.9 percent of the vocational agriculture students. Ten of eleven students elected to Phi Kappa Phi were vocational agriculture students.

It was concluded that vocational agriculture provides adequate background training for students enrolling in the college of agriculture at the University of Wisconsin. It was felt that guidance was more effective among the vocational agriculture students since higher quality students were directed on to college. It was further concluded that ability of the students, residence, and vocational agriculture were all related to student success in college.

3081. RASH, HENRY FORD. Characteristics of Farm Operators in Planning Programs of Adult Education in Agriculture. Problem option, M. of Agr. Ed., 1961, North Carolina State College. 71 p. Library, North Carolina State College, Raleigh.

Purpose.—To identify and establish the types of adult education programs which would be beneficial to the adult farmers of the Friendship Community, Ashe County, N.C. A second purpose was to collect information from the farm operators which could be analyzed to determine some of the characteristics of the farm operators which might be used for grouping purposes.

Method.—An effort was made to contact every farm operator residing in the Friendship Community. Over 90 percent of the farm operators were contacted and interviewed. An interview form was used to collect the data.

Findings.—Age, size of farm, educational attainment, tenure status, level of living, and the communications index scores of farm operators were factors which affected the actions of farm operators in the Friendship Community and which should be considered by change agents in planning educational programs for farmers of this community.

Tenure status, educational attainment, level of living, and the communications index scores of farm operators were factors affecting sources of information concerning farm problems. Part owners, high level of educational attainment, high level of living, and high communications indices were associated with more frequent use of professional workers as sources of agricultural information.

Age, level of living, and communications index scores were factors influencing participation in organized group activities by the farmers in the Friendship Community. As age increased, participation decreased. However, as level of living and communications index scores increased, participation also increased. Tenure status and educational attainment apparently had little effect.

Most farm operators in the Friendship Community were interested in visits by the vocational agriculture teacher and in group meetings. Younger farm operators preferred more regular meetings, such as monthly; older ones wanted most of the meetings to be in the winter months. The more highly educated farmers wanted monthly meetings. The younger farmers tended to be more interested in specialized courses, such as tractor maintenance and welding; older farmers wanted more general-type programs. Educational attainment was a factor in the type courses preferred. The higher the educational attainment, the more the farmers wanted specialized courses. Communications index scores and level of living scores were also factors in farmers requesting special courses. Willingness to attend meetings of any kind decreased with an increase in age.

3082. Reid, Richard A. Occupational Status and Values in Vocational Agriculture Training. Master's Report, M.Ed., 1960, Colorado State University. 118 p. Library, Colorado State University, Fort Collins.

Purpose.—To identify the occupational status of 159 former vocational agriculture students who graduated from the Mopapa and Virgin Valley High School, Clark County, Nev., during the period 1945 to 1954; (2) to determine the reasons for the respondents entering nonfarming occupations and the values received from vocational agriculture instruction in their present occupations.

Method.—A list of graduates were obtained from the school files. Addresses and occupations of the respondents were obtained from principals, classmates, parents, and by personal contact. The major emphasis of the study dealt with the values of vocational agriculture to those in nonfarming occupations; therefore, personal interviews were held and questionnaires completed with the 46 respondents who were engaged in nonfarming occupations and resided within 100 miles of the high school attended.

Findings. —The data revealed that, of the 159 graduates, 10.7 percent were farming, 53.4 percent were in nonfarming occupations and the other 35.9 percent were in military service, in college, or on missions. The major reasons given for not going into farming, in order of their importance, were the following: (1) Lack of capital for initial investment; (2) inadequate size of home farm, and (3) wasn't interested in farming. The graduates gave these as major reasons for selecting a nonfarming occupation: Liked the type of work, better working conditions, more income, and opportunities for advancement. Wives and parents were the persons who had the most influence about occupational choices.

The 46 respondents were engaged in 26 nonfarming occupations involving skilled occupations, sales activities, and professional work. Ninety-one percent expressed satisfaction with their present occupation. Thirteen percent were desirous of returning to the farm.

Of the 46 respondents 91 percent indicated they would recommend a course in vocational agriculture for their sons; 62 percent indicated that they were using vocational agriculture training in their present occupation, while 74 percent said that it was useful in their everyday living and community activities. The instruction received in farm mechanics, FFA activities, and farm economics were the areas found to have the greatest carryover into their present occupations.

3083. Rodgers, John Hasford. Participation of Ohio Part-Time Farmers in Young Farmer Programs in Vocational Agriculture. Ph. D. dissertation, 1961, The Ohio State University. 236 p. Library, The Ohio State University, Columbus.

Purpose.—To investigate the activities of part-time young farmers in the local young farmer programs of Ohio and to identify some desirable adjustments to meet better the needs of these farmers.

Method.—Data were collected by questionnaire and tabulated from 161 enrolled participants in organized young farmer programs and 112 nonenrolled part-time young farmers and from the 57 teachers of agriculture in the school districts represented. Data were also secured from annual reports submitted to the State department of education by the 57 teachers.

Findings.—Many young families on farms in Ohio were profitably engaged in part-time farming. Young part-time farmers enrolled in young farmer programs and those in the nonenrolled group were quite similar in age, days and hours worked on nonfarm jobs, percentages married, and general level of living. Enrolled respondents, however, had more formal education, kept more farm records, had larger average investments in farming and received more income from nonfarm employment.

Some difficulties in farming identified by both groups included (1) lack of management ability; (2) low farm income; (3) lack of capital, and (4) lack of mechanic skills.

Some difficulties experienced by teachers in enrolling part-time young farmers were: (1) Off-farm employment consumes too much time; (2) hard to schedule a satisfactory meeting time; (3) lack of interest among part-time young farmers; and (4) lack of time to contact prospective members.

Among the major difficulties recognized by teachers in teaching part-time young farmers were: (1) Poor attendance at meetings; (2) lack of time for followup visits; (3) needs of part-time young farmers have not been identified; and (4) hard to find common problems.

This investigation: (1) Points up the need for additional programs of young farmer instruction in Ohio as a means of heping to solve the problems of part-time young farmers; (2) presents a challenge to teacher educators and supervisors in working with teachers and school administrators to develop more effective programs of vocational education in agriculture.

3084. **Roediger, Roger Dean. History of the Ohio Vocational Association. Thesis, M.A., 1960, The Ohio State University. 152 p. Library, The Ohio State University, Columbus.**

Purpose.—To present under one cover the relevant and significant information available pertaining to the history of the Ohio Vocational Association. The information gathered in the study provides an organized reference of past actions, policies and important activities of the association. The purpose is also to provide a beginning record upon which a more up-to-date historical record of the association can be built. The study also preserves the names of those persons who have contributed their services to the purposes of vocational education. The study also provides a record of the location of copies of very scarce association materials such as constitutions, minutes of meetings, and programs of work.

Method.—A list was compiled of the names of persons who at one time had an active part in aiding association work. These persons were contacted either by a questionnaire form or by a personal interview depending upon the degree or type of information which they had.

Libraries were contacted for information regarding the association's history. The collected materials and information were divided into six major areas. These areas included: Events leading to organization of the association, organizational structure, legislative activity, membership, and public relations.

Findings.—Many events illustrate the change from a relatively simple to complex structure of the association from the 1920's to 1960. In recent years numerous individual teacher members and committees assumed responsibility formerly done by State supervisors or not done at all. Memberships changed from a group restricted to teachers and administrators of vocational education to six classes of individuals interested in the association. Legislative responsibility shifted from States supervisors to members and committees under a highly structed legislative program in the 1940's public relations media.

3085. **Saloutos, Charles T. Pasture Improvement in Oconto County. Seminar Report, M.S., 1960, University of Wisconsin. 108 p. Department of Agricultural Education, University of Wisconsin, Madison.**

Purpose.—Three objectives were formulated for this study: (1) To determine the pasture management practices being followed by the farmers in Oconto County; (2) to determine the problems relating to the pasture management that affect the farmers in Oconto County; and (3) to develop suggested problem areas in which organized instruction could be provided in pasture management with suggested units which might be taught to vocational agriculture students and farmers in Oconto County.

Method.—A list of all the farmers in Oconto County was obtained which consisted of 2,700 names. From this list a 15-percent random sample of farmers was drawn. Therefore, 15 percent of the farmers in the county received questionnaires. Out of the 405 questionnaires mailed, 211 were returned.

Findings.—After analyzing the uses of pasture land and the average number of cows milked, it was concluded that farmers are using more land for pasture than is needed. Wild pastures were used in farms of all sizes. Green feeding seemed to be a question that many farmers had on pasturing. When asked about strip grazing for pasture, many of them indicated that they had used strip grazing or are using it at the present time.

Many of the farmers thought in the future they would try to feed silage the year around. Most of the farmers neglected the use of fertilizer on their pastures. Farmers in the survey did not show too much interest in pasture land management.

3086. **Sandahl, Arnold G. A Course of Study for Farm Mechanics With Selected Instruction Sheets. Problem, M.S., 1960, University of Minnesota. 132 p. Department of Agricultural Education, University of Minnesota, St. Paul.**

Purpose.—To determine the areas of instruction in farm mechanics with time distribution in Agriculture I, II, III, and IV and selected instruction sheets with suggested projects suitable to local conditions.

Method.—The author made a study of census information for the local county to determine significant changes and trends in agriculture and investments during the past decade. A review of surveys and studies of farm mechanics instruction in the United States was made to determine recommendations for course content and methods of presentation. Special reference was made to findings and recommendations of the U.S. Department of Education. A time allotment and distribution of important phases of farm mechanics was integrated into agriculture I, II, III, and IV courses of study according to the needs and abilities of students. Instruction sheets were prepared with job operations for essential skills in carrying out suggested projects in typical areas of farm mechanics.

Findings.—Farms are becoming fewer and larger. The average value per farm in the area doubled in the past 10 years. During this period, the number of tractors increased 50 percent, combines 245 percent, corn pickers 111 percent, pickup balers 780 percent. Universal electric service is leading the way to automation in feed handling and other laborsaving methods. These and other changes have brought about the need for modernization of buildings and equipment. Studies of farm mechanics instruction show the need for revision of courses of study to meet the needs of present and future farmers. The author recommends the integration of farm mechanics instruction into agriculture I, II, III, and IV according to the needs and abilities of the students. Also, a time allotment and distribution was considered essential to avoid omitting important areas of instruction. It is also recommended that instruction sheets with job operations for essential skills in carrying out life-like projects be used to stimulate and activate the farm mechanics program in vocational agriculture.

3087. SANTOS, BRUNO M. A Critical Analysis of the In-Service Training Needs and Participation in In-Service Training Programs by Teachers of Agricultural Schools of the Philippines. Thesis, Ed. D., 1961, Michigan State University. 214 p. Library, Michigan State University, East Lansing.

Purpose.—To determine the inservice training needs, and the scope and participation by teachers of agricultural schools of the Philippines in inservice training programs.

Method.—Data were obtained by means of questionnaires sent to teachers of 25 and administrators of 32 agricultural schools, and 7 teacher-training institutions.

Findings.—Out of 27 items of need listed in the questionnaires, the teachers rated 20 as critical with scale points of 3.0 or higher on a five-point scale. The range of needs was 15 to 24. Language teachers expressed the most and social science teachers the least number of needs. Grouped into areas and priority the needs were: (1) Research and experiments; (2) subject matter content; (3) methods; (4) cocurricular activities; (5) general education; and (6) administration and supervision. All areas were given scale points higher than 3.0, the midpoint on the scale.

Administrators and teachers were agreed as to the latter's need for inservice training. However, they disagreed on the priority of these needs.

The administrators expressed the need for inservice training in all the items listed in the questionnaires. The areas of needs were: Administration, supervision, curriculum, guidance, and public relations.

Workshops, conferences, and demonstrations were the techniques commonly used in inservice programs.

Less than three teachers per school participated in one or more inservice training programs each year. Among the respondent teachers only two attended per year per school.

The participation by teachers and administrators in inservice programs was directly related to years of tenure up to 15 and 20 years, respectively, and inversely related thereafter. The number of inservice programs conducted by administrators was directly related to their participation in regional and national inservice training activities.

Limited opportunity, lack of funds, subject not in interest field, and family responsibilities were the important reasons why teachers had limited participation in inservice training activities. "Too busy with administrative duties" was the most important reason which limited the number of local inservice programs conducted by administrators.

Inservice programs held in the past were judged as generally effective but inadequate and limited in scope.

Teacher-training institutions expressed willingness to cooperate with and assist the Bureau of Public Schools in providing inservice training activities for teachers.

Time, finance, and certain regulations appear to be the major sources of impediments limiting the number and frequency of inservice training activities provided and the participation by teachers in these programs.

3088. SAUPE, WILLIAM EDWARD. Farm Record Analyses as Source of Farm Management Guides. Thesis, M.S., 1961, Iowa State University of Science and Technology. 81 p. Library, Iowa State University of Science and Technology, Ames.

Purpose.—The purpose of this study was to identify relationships found in the analyses of the farm records kept by the trainees in the Sheldon, Iowa, and Sibley, Iowa, veterans farm-training classes during 1959 and 1960, which could be used as farm management guides.

Method.—Data were collected by the investigator from information contained in the farm record books kept by each trainee. These data were treated statistically to obtain means for each of 24 variables, and to find the coefficients of correlation between each variable and each other variable. Variables included measures of financial progress, sources of gross profits, scale of operations, labor and machinery performance, livestock production, crop production, and personal information about each operator.

Findings.—Operator's net farm income and operator's labor and management return were nearly identical measures of annual financial achievement. Highly significant correlations occurred between operator's gross profits and operator's net farm income in both 1959 and 1960.

Operator's net farm income was correlated with several measures of volume of business, but with only a few measures of efficiency of business. Highly significant coefficients of correlation were observed for both years between operator's net farm income and the following: Operator's gross profits; gross profits from crops; gross profits from livestock; and total value of capital managed. Crop acres and total acres were significantly correlated with operator's net farm income for 1959. The number of cattle fed and the productive man work units were significantly correlated with operator's net farm income for 1960.

There was a highly significant negative correlation between power and equipment operating expense per crop acre and operator's net farm income for 1959. Livestock returns per $100 feed fed and pigs weaned per litter were significantly correlated with operator's net farm income for 1959.

No significant correlations between years of school completed and operator's net farm income were observed. One explanation offered by the investigator was that the training in farming received in the veterans farm training program had tended to equalize the differences in income attributed to educational achievement.

3089. SCHMIDT, GERALD J. Relation of High School Vocational Agriculture and Science to Achievement in the College of Agriculture. Thesis, M.S., 1961, the Iowa State University of Science and Technology. 88 p. Library, Iowa State University of Science and Technology, Ames.

Purpose.—To determine the relationship between the number of semester credits of high school vocational agriculture and science completed by students, the academic achievement of students, and their relationship with some of the predictors commonly used in counseling students enrolled in the College of Agriculture.

Method.—An analysis was made of the records of 287 male students who were graduated from an Iowa High School in 1955 and matriculated into the College of Agriculture at the Iowa State University of Science and Technology in the fall of 1955. From the data gathered, 16 variables were selected and correlated with each other. The variables included: Semesters of high school science, vocational agriculture, general agriculture, and total agriculture; quantitative thinking score and linguistic thinking score of the A.C.E. and reading speed score, reading comprehension score, and English placement score; high school, first-quarter college, and final college quality-point averages; tendency to graduate from the college of agriculture; tendency to enroll in the curricula of agriculture education, animal husbandry, or farm operation.

Findings.—There was a highly significant correlation between first-quarter quality-point averages and (1) semesters of high school vocational agriculture, 0.20; (2) total agriculture, 0.19; (3) Q scores, 0.37; (4) linguistic thinking scores, 0.37; (5) reading speed scores, 0.27; (6) reading comprehension scores, 0.43; and (7) high school quality-point averages, 0.68. High school average was more highly correlated with first-quarter college quality-point averages than were any of the other variables.

There was no correlation between first-quarter quality-point averages and semesters of science of general agriculture taken in high school.

Final college quality-point averages correlated most highly with high school quality-point average (0.71), and first-quarter quality-point average (0.85) which indicated that quality-point averages are closely associated.

Final college quality-point averages were also found to be correlated positively at the 1-percent level with (1) semesters of high school vocational agriculture, 0.18; (2) total semesters of high school agriculture, 0.15; (3) quantative thinking scores, 0.37; (4) linguistic thinking scores, 0.32; (5) reading speed scores, 0.21; (6) reading comprehension scores, 0.35; and (7) English placement scores, 0.37. The correlation of semesters of high school general agriculture with final college quality-point averages yielded a coefficient correlation of −0.13, significant at the 5-percent level. Semesters of high school science did not yield a significant correlation when compared with final quality-point average.

It appeared that high school quality-point average was the best single predictor of achievement in the college of agriculture when achievement was considered in terms of first-quarter and final college quality-point averages and the tendency to graduate from the college of agriculture. It also appeared that high school vocational agriculture had more to do with a student's success in the college of agriculture than did high school science courses.

3090. Shodean, Wallace D. **The Use of Corn Fertility Plots as a Means of Presenting Soil Fertilizer Use Information to Farmers.** Problem, M.S., 1960, University of Minnesota. 68 p. Library, Department of Agricultural Education, University of Minnesota, St. Paul.

Purpose.—(1) To conduct a 2-year study of the use of corn fertility plots at Le Roy; (2) to determine what extent corn fertility plots were used in the chief corngrowing areas in Minnesota; (3) to obtain from vocational agriculture instructors an evaluation of corn fertility plots as a means of presenting soil fertilizer use information to farmers; and (4) to develop techniques in establishing corn fertility plots as a teaching aid for all-day students and adult farmers in the Le Roy area.

Method.—The writer conducted corn fertility plots in 1955 and 1956. Questionnaires were mailed to 115 vocational agriculture instructors in the 35 counties of the chief corn-producing area in Minnesota. Eleven instructors returned full information concerning their corn fertility polts of 1956 or 1957. Evaluations of the use of corn fertility plots in their communities were received from 58 instructors.

Findings.—The two plots brought corn fertilizer use information to Le Roy farmers and provided many learning experiences for all-day students. Twenty-two instructors had conducted corn fertility plots and 11 gave full information of their 1956 or 1957 plots. A procedure for establishing corn fertility plots was developed from this information and the Le Roy plots.

Sixty-nine instructors returned the questionnaire: 53 stated plot work was a practical means of presenting soil fertilizer use information to farmers, 11 made no comment, and 5 stated it would not be practical in their communities.

It was recommended that (1) corn fertility plots be used more extensively; (2) plot work be the cooperative efforts of the FFA, and/or adult farmers and extension service; (3) all-day students test soil, map, measure and stake, observe deficiency symptoms, harvest, and calculate yields of the plots; (4) the plot be on a farm of FFA member or adult farmer, be kept free from weeds, and properly identified; (5) all plots be completed through yield calculation; and (6) all available means of publicising plot activities and results be used.

3091. Smith, Clodus Ray and Glen Baird. **Factors Affecting Student Success in the College of Agriculture as Shown by Research.** Staff Study, 1960, University of Maryland. 25 p. Agricultural Experiment Station, University of Maryland, College Park.

Purpose.—To review and summarize research findings that had determined factors affecting student success in college.

Method.—A comprehensive review of literature was prepared from available and solicited sources. One hundred and two items of research pertaining to the subject were reviewed and summarized.

Certain studies were referred to more than one time to show findings as they bore on the problem under consideration. The research reviewed was reported under the following major headings: (1) Effect of vocational agriculture; (2) comparison of student achievement in public and private schools; (3) influence of high school size; (4) predictability of high school grades; (5) predictability of entrance examination; and (6) the effect of social and economic factors. A summary statement and bibliography were provided.

Findings.—Findings of research reviewed indicated that success in college could not be determined by the pattern of subjects taken in high school. It was presumed that college preparatory programs made the greatest contribution to academic success in college, but research findings failed to support this assumption.

The studies reviewed did not reveal any one course or curriculum to be superior to other courses or curricula in the preparation of students for academic success in college. The findings presented by researchers provided sufficient evidence to conclude that vocational agriculture contributed to the preparation of students for the college of agriculture equal to that of other high school courses.

A consensus was found that, in terms of academic achievement in college, graduates from public schools were superior to graduates from private schools. Some disagreement existed in research findings regarding college achievement of students who had graduated from different sized high schools. Based on this summary of studies, findings were deemed inconclusive.

Several studies reported that academic achievement for groups was predicted with considerable accuracy, particularly the upper one-third to two-fifths of a given group. High school rank was found to be a useful concept for predicting success in college when applied to groups. Psychological examinations were found to be of little value in predicting individual student success.

3092. Stevens, Glenn Z. **Advanced Degree Status and Plans and Eligibility for Sabbatical Leave of Teachers of Vo-**

cationl Agriculture and Area Supervisors. Staff study, 1961, The Pennsylvania State University. 14 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose.—To determine the institutions and major fields in which bachelor's and master's degrees were earned, the subject matter and administrative areas in which Pennsylvania teacher certification is held, the advanced degree plans and credits earned above the bachelor's degree, and the earliest year eligible for sabbatical leave.

Method.—With cooperation of the State department of public instruction a data schedule was completed by the 26 area supervisors of vocational agriculture and for the 320 teachers employed in 265 schools in Pennsylvania at the end of the 1960–61 school year.

Findings.—The bachelor's degrees of 288 teachers and 19 area supervisors were in agricultural education. Thirty teachers and seven supervisors earned bachelor's degrees in other majors in agriculture. Two teachers do not have a degree. The bachelor's degrees of 299 teachers and 23 supervisors were earned at Penn State. Six earned the degree at West Virginia, five at Maryland, and four at Cornell.

Master's degrees have been completed by 106 teachers and 13 supervisors. Three-fourths are from Penn State in agricultural education. In the 35–44 age group, 46 percent have a master's degree. Seventy-seven teachers and two supervisors are active candidates for a master's degree, mostly the younger men.

Only 9 of 146 eligible teachers have taken advantage of the State school code proivsions for sabbatical leave at half salary after 10 years of teaching. About 18 teachers will become eligible in each of the next 9 years. Some will work toward additional subject matter field and administrative certification and a few will travel. Most should be encouraged to earn advanced degrees while improving professionally as teachers of agriculture.

3093. STEWART, LONZO FLOYD. Teaching Conservation of the Natural Resources in Texas Public Schools. Thesis, M.A., 1960, Southwest Texas State College. 91 p. Library, Southwest Texas State College, San Marcos.

Purpose.—To determine what has been done and what has been planned for the immediate future in the teaching of conservation of natural resources in Texas public schools.

Method.—Two surveys were conducted, one concerning the conservation education program in the public schools and one concerning the offerings in conservation education by institutions of higher learning with approved teacher-training programs. A questionnaire was developed, tested in interviews with school administrators and mailed to 201 selected schools. Another questionnaire was mailed to 47 colleges and universities.

Findings.—(1) School administrators were concerned about conservation education since over 88 percent returned the questionnaire. (2) Every school administrator believed his school should be doing a better job. (3) School administrators believed that conservation of natural resources should be taught and should be required. (4) School administrators emphasized that conservation of natural resources should be integrated into subjects already in the curriculum. (5) The schools (500–1499) of the medium group were doing a slightly better job of conservation education than were larger and smaller size schools. (6) Most colleges and universities were doing little or nothing to train prospective teachers to teach conservation of natural resources and almost no plans were being made to improve that condition.

3094. ST. JOHN, GEORGE WILLIAM. A Study of the Changes Made in Dairy Management Practices by Clark County Farmers on Spencer Silt Loam Soil Type From 1949 to 1957. Thesis, M.S., 1959, University of Wisconsin. 84 p. Library, University of Wisconsin, Madison.

Purpose.—The specific purpose of this study was to study the various new practices adopted in relation to various factors, such as daily herd size, total farm acres, crop acres, and age of the farm operator.

Method.—In the original survey, 180 Clark County dairy farmers residing on Spencer silt loam type soil were interviewed. The 180 farms surveyed were selected starting with the 5th name, selected at random from the Agricultural Stabilization Service rolls at the agricultural and stabilization office; every 20th name was selected. The selected farms were then located on a map and the interviews made. In the second survey made 8 years later, the same 180 farms were visited. The operators of the farms had changed in many instances. This fact was considered in the study.

Findings.—Some of the conclusions were as follows: (1) Dairy herd size increased, resulting in a decreasing number of small dairy herds. (2) Farm size, when measured in total acres noticeably increased over the survey period. Along with the total acreage increase, a strong tendency toward a higher percentage of the farm being put into cropland was found. (3) Soil testing made by far the greatest strides in acceptance of any practice studied, having doubled in ferquency over the survey period. (4) Milk testing increased in frequency over the survey period, being more popular on farms supporting large dairy herds than on farms supporting small dairy herds. (5) Artificial insemination has gained in popularity, while the use of purebred and grade sires has declined. (6) Income per cow has increased noticeably in all herd size classes except in the class of 10 or less dairy cows where a decline in income per cow was reported. This increased income per cow combined with larger average size dairy herds has resulted in substantially higher farm income. (7) It was found that the age of the farm operator had little relation to his use of the various practices studied in this presentation.

Some of the recommendations were as follows: (1) That instructors of vocational agriculture, county extension agents, and others in advisory positions strongly recommend and demonstrate the use of those management practices studied in this presentation which are applicable in the situation at hand; and (2) that the data collected in the 1949 and 1957 surveys, upon which this presentation was based, be used as the basis for further studies.

3095. SWANSON, ROBERT MAGNI. Opportunities for Establishment of Young Farmers in the Marengo, Iowa, Community. Thesis, M.S., 1961, Iowa State University of Science and Technology. 59 p. Library, Iowa State University of Science and Technology, Ames.

Purpose.—To determine the opportunities for establishment of young farmers in the Marengo, Iowa, Community.

Method.—Information was obtained from 363 farm operators in the area served by the Iowa Valley Community School at Marengo, Iowa.

Findings.—Ninety-one farm operators had entered farming during the past 10 years; 54 had become established during the past 5 years. Forty-six operators were over 65 years of age. If they retire during the next 10 years, this would be an average of 4.6 farming opportunities during the next 10 years.

Farm operators who owned all the land they operated numbered 115, or 31 percent of the total. Forty of the farmers, or 11 percent, were both owners and renters. Renters numbered 78, or 21 percent of the total. The number of operators with partnerships were 88, or 24 percent of the total. Thirty-two, or 9 percent, were serving as hired hands. Ten farmers, 3 percent, were classified as having other farm status.

There was a relationship between the number of tillable acres operated and the education of the operator. The more formal education the operator had, the larger the number of tillable acres farmed.

Of the 50 employed sons living at home, 23 were farming; 75 of the 142 sons away from home were farming.

Considering the age of the farm operators, general retirement age of farmers and the decreasing number of farms the actual need for farmer replacements during the next 10-year period may be approximately 76 operators. It was estimated that 68 sons of operators may be looking for farming opportunities during the next 10-year period.

3096. THOMPSON, ORVILLE E. A Guide To Interest Students in Agriculture. Staff study, 1961, University of California. 17 p. Department of Agricultural Education, University of California, Davis.

Purpose.—To find the practices which teachers of vocational agriculture had found successful in interesting students in the study of agriculture.

Method.—Questionnaires were sent to teachers of agriculture in California and to 10 selected teachers in several nearby States. Usable replies were received from 144 experienced teachers of vocational agriculture.

Findings.—It was found that teachers of agriculture work with eight different groups when informing them about the program in agricultural education. These are grade school pupils, grade school teachers, high school students, high school teachers, school administrators, counselors, parents, and local businessmen. These teachers identified 120 different practices that had proven successful in working with these groups. They emphasized that a successful selective recruitment program must have: A general program of information on agriculture for all groups; a means to identify those students already interested in agriculture; and a means to communicate with students who may become interested in agriculture once they know something about it.

It was further emphasized by teachers that this is a year-round program which requires much hard work. The most successful teachers were making liberal use of their students, Future Farmer chapter officers, Young Farmers, and others in the community for assistance in their selective recruitment program.

3097. TOM, FREDERICK K. T., CHARLES W. HILL, and KINGSLEY L. GREENE. Employment Opportunities in Certain Occupations Related to Farming in the Syracuse Economic Area, New York. Staff study, 1961, Cornell University. 27 p. Rural Education Department, Cornell University, Ithaca.

Purpose.—This study was limited to 17 occupations selected by New York teacher trainers and supervisors present in a 5-county area. The two specific purposes were (1) to determine the number of employment opportunities in each of certain selected occupations related to farming; and (2) to determine the general nature, level, and scope of pre-employment training needed by prospective employees for the occupations for which there are abundant opportunities. The general purpose was to determine whether New York secondary schools should establish *vocational training* programs in related occupations.

Method.—In the designated area there were 1,040 firms which were engaged in business likely to have employees in the 17 occupations studied. These 1,040 firms were contacted either by the mailed questionnaire or by the interview technique. Only 349 of the firms, or 32.4 percent, contacted regularly employed people in the selected occupations.

Findings.—There are 151.7 job opportunities available each year in the Syracuse economic area in the 17 related occupations studied. Calculated on the basis of a local school vocational agriculture department, this is equivalent to 4.1 job opportunities per year per department. About three-fourths of all the opportunities are in firms dealing with farm machinery and equipment, trucking, landscape gardening, and farm supplies. A high school education or more was *required* by 56.8 percent of the employers responding but was *preferred* by 85.3 percent. A farm background was considered to be essential by 20.6 and desirable by 64.1 percent of the employers responding. Formal school training in agriculture was thought to be essential by 8.9 and desirable by 68 percent of the employers responding. In the 5 counties in the Syracuse economic area the annual opportunities ranged from 12.87 in Oswego County to 73.60 in Onondaga County.

The authors reached the following conclusions: Employment opportunities in each school district in *each* of the individual occupations studied were limited. Collectively, the opportunities present in the 17 occupations can only be rated fair. In none of the 17 occupations studied were employment opportunities sufficiently large to warrant the establishment of specific vocational training programs by a local school district designed to develop the special skills needed by employees in the given occupation. A person interested in employment in related occupations would find a high school education, a farm background and formal training in vocational agriculture to be valuable assets.

3098. Van Dixhorn, Ralph Lee. Teaching Procedure for Improving Dairy Herd Records of Vocational Agriculture Students in Dane County, Wisconsin. Thesis, M. Sc., 1960, The Ohio State University. 127 p. Library, The Ohio State University, Columbus.

Purpose.—To determine what can and should be done to make the instruction of dairy herd records more meaningful and functional in the lives of vocational agriculture students in Dane County. This purpose is based on the underlying assumption that these records are so vital to herd improvement that vocational agriculture students should and can benefit from such instruction.

Method.—The data for this study were collected by means of two sets of questionnaires. One questionnaire study involved returns from 15 vocational agriculture instructors in Dane County, Wis. From these returns, it was determined what had been accomplished in terms of dairy herd records in these departments and what were the instructional techniques teachers used in securing dairy herd records and dairy cattle improvement. Teachers also listed their greatest difficulties and outcomes of their D.H.I.A. instruction and related the success of this phase of their program.

The second questionnaire study involved returns from 88 farmers in Dane County who were production testing their herds. These farmers were asked to indicate what influenced them to test their herd and why they continued to do so. They were also asked to evaluate the instructional techniques teachers used in high school in stimulating boys to keep dairy herd records.

Findings.—Only 22 percent of the vocational agriculture enrollment in Dane County kept 12-month production records. The percent of students who tested dropped from 75 percent in the freshman year to 22 percent in the senior year. Much of this failure seemed to be related to the failure of students to test during the summer months. The greatest difficulty was the lack of time both on the part of students and teachers to get the testing done and the records kept up to date. Although teachers had more time for classroom activities, most of their effort was toward securing rather than using production records.

Farmers who had vocational agriculture training indicated that the most important influence in getting them to test their herd was the vocational agriculture program. Farmers also indicated that teachers should base more classroom instruction on information derived from students' records. On the basis of these findings, it was recommended that teachers enroll as many as possible of their dairy students in the owner-sampler D.H.I.A. testing program which will provide the testing service and completed machine records each month. It was also recommended that teachers should concentrate on classroom activities designed to use these records.

3099. Wall, Raymond C. A Study of Departmental Records and Reports on Farming Programs in Vocational Agriculture for Wisconsin. Nonthesis study, M.A., 1960, University of Minnesota. 144 p. Department of Agricultural Education, University of Minnesota, St. Paul.

Purpose.—To determine essential information and preferred design in departmental records and reports on farming programs of high school students, young farmers, and adult farmers in vocational agriculture in Wisconsin, and to develop record and report forms based on findings from the study.

Method.—Two questionnaires were submitted to the 303 instructors in vocational agriculture in Wisconsin: 152 received Form A (Records) and 151 received Form B (Local and State office reports). Each questionnaire contained questions on characteristics, purposes, and items that might be included in records or reports which could be answered by checking (yes), (?), or (no) columns. The data obtained provided the framework around which recommended forms were prepared.

Findings.—Four suggested characteristics of departmental records of farming programs were approved for high school students and young farmers and two for adult farmers. Seventeen, 16, and 14 purposes for keeping records were approved as were 21, 20, and 16 items in records for the respective groups.

Only one suggested characteristic of departmental reports on farming programs (outline form) was approved. Four proposed reasons for making reports were approved. In reports to the local administrator, 12 items were approved for high school students, 4 for young farmers, and 3 for adult farmers. Items from the same list that were approved for State office reports numbered 7, 4, and 2 for the respective groups.

Findings seemed to indicate that departmental records and reports on farming programs were valuable primarily for instruction, and that records were of more value than reports. A wide variation was noted in methods of applying principles of education in vocational agriculture. Approval of items in records or reports seemed to be weighed by the time required to perform the implied instruction, recording, or reporting.

Several departmental record and report forms for farming programs were recommended which were designed to enable the instructor to use student and secretarial help, since the time factor seemed important.

3100. Webb, Earl S. Educational and Employment Status of 1960 Graduates Who Were Enrolled in Vocational Agriculture with Implications for Vocational Guidance. Nonthesis study, 1961, University of Missouri. 17 p. Department of Agricultural Education, University of Missouri, Columbia.

Purpose.—The primary purposes of this study were to ascertain: (1) Where high school graduates, who were enrolled in vocational agriculture their senior year, entered college in 1960-61; and (2) the type occupation chosen by those not furthering their formal education.

Secondary purposes were to determine: (1) If the degree of job satisfaction of teachers of agriculture has any apparent influence on where students attend college; (2) if teachers of agriculture believe students who plan to enter the college of agriculture should take their first two years of college courses at a State or other college; and (3) the degree of occupational advice given by the teacher of agriculture to their graduating students.

Method.—A 1-page questionnaire, consisting of 10 items, was mailed to 260 Missouri teachers of vocational agriculture in April 1961.

Findings.—Twenty-eight percent entered college, with a 17-percent dropout in less than a year; 70.7 percent were employed and 6 percent were unemployed.

Of those entering college, the percentage distribution was as follows: College of agriculture, 26.6; State colleges, 41.3; and other schools, 32.1.

Employment status of those not in college at the time of the study was in percents as follows: Industry or business, 34.3; armed services, 17.2; farming, 31.9; farmhand, 8.7; and without employment, 7.9.

No relationship was found between job satisfaction of teachers and where students attend college. A large majority of teachers thought students should do all their college work at the college of agriculture, except for students having learning difficulties; these should attend smaller schools.

Eighty percent of Missouri teachers of vocational agriculture assist students in making occupational choices. However, much misunderstanding exists concerning vocational guidance and its place in helping students select careers.

3101. Webb, Earl S. Interrelationships of Selected Factors in the Training of Persons Qualifying at the University of Missouri to Teach Vocational Agriculture. Nonthesis study, 1960, University of Missouri. 12 p. Department of Agricultural Education, University of Missouri, Columbia.

Purpose.—The primary purpose of this study was to determine if apparent relationships exist between: (1) The scholastic averages earned at the University of Missouri by persons who qualify to teach vocational agriculture; (2) the number of years they teach; and (3) the number of years enrolled in high school vocational agriculture.

Method.—All data were taken from the records kept on file in the department of agricultural education. Only the names of persons qualifying during the period 1947-55 for whom complete data were available were used in this study.

Findings.—Of the 332 persons who qualified during the period studied, 130, or approximately 40 percent, had not been enrolled in high school vocational agriculture; 101, or 80 percent, had studied the subject 4 years. The mean scholastic average of each group was the same.

Fifty-seven of the 147 who were still teaching at the time of this study had no vocational agriculture in high school as compared to 45 who had studied the subject 4 years. The mean number or years taught by each group was 8.23 and 6.76, respectively.

The data show that the persons who had better scholastic averages on graduation from college tended to stay in teaching while the less capable persons dropped out. Not only did the mean scholastic average of the group tend to increase with number of years taught, but it became more uniform.

It would appear that high school vocational agriculture is neither an asset nor a liability in terms of scholastic success for persons qualifying at the University of Missouri to teach vocational agriculture.

There appears to be justification for believing that persons who graduate from college with above average grades will remain in teaching longer than those who complete college with less scholastic achievement.

3102. WILLIAMS, CECIL E. Farm Mechanics Tools for Instruction of High School Students and Young Adult Farmers in Vocational Agriculture. Paper, M. Ed., 1961, The Pennsylvania State University. 40 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose.—To use a systematic approach to the development of a functional, complete list of tools for the five major areas of instruction in farm mechanics.

Method.—Tools needed for instruction in the mechanical phases of the units in the Pennsylvania Pattern Course of Study for Vocational Agriculture were organized into a data schedule with the tools classified according to major use in the five areas of farm mechanics. Ten teachers in schools that have high school classes only were interviewed. Another group interviewed included teachers in 10 schools that also have young adult farmer programs. The list was used as a questionnaire with a third group of teachers in 10 schools that have complete programs in vocational agriculture. The information obtained included the number of each of the tools each school had, whether the tool is used and the teacher's judgment of whether the tool is needed. To be included in the recommended list each tool had to be needed in 20 or more of the 30 schools. Before final compilation the data were submitted to five university specialists in farm mechanics for modification.

Findings.—Of the 292 tools listed, 227 were needed in 20 or more schools. There were 30 tools present in less than 15 but needed in more than 20 schools. There were 30 needed tools being used in more schools than owned them and, conversely, 26 tools not needed were found in more schools than were using them.

In the schools with young adult farmer programs, 190 different tools were present in larger average quantities. The schools with high school instruction only averaged 16.5 students in the largest farm mechanics class. The 2 groups of schools with young adult farmer work averaged 19 and 20.1 high school students in the largest farm mechanics class.

Although most of the 258 tools on the recommended list are needed in more than one area, 107 were classified as having primary use in farm power and machinery, 71 in farm buildings, 61 in farm shop practices, 9 in farm electrification, and 10 in soil and water management. A sample teaching calendar demonstrated the listing of tools needed for instruction is mechanical phases of a unit of instruction when integrated with production and management problem areas of the unit.

3103. WILSON, JOHN MINTON. An Occupational Survey of Former Vocational Agriculture Students of High Schools in the Wheat Area of Washington State. Thesis, M.S., 1961, Washington State University. 38 p. Library, Washington State University, Pullman.

Purpose.—To determine relationships between high school vocational agriculture and the occupational status of former students. Is vocational agriculture meeting the needs of those for whom it was designed? What agriculturally related occupations are vocational agriculture students entering? What evaluation of their course do the graduates assess?

Method.—The names and addresses of all vocational agriculture graduates of seven eastern Washington high schools for the period 1950-55 were secured. A questionnaire was sent to each individual who had taken 3 or more years of agriculture. Mailings were made to 208 individuals. The returns amounted to 141, or 67.8 percent.

The questionnaire was designed to determine the occupational status, occupational influences, influence of vocational agriculture on occupation selection, methods of entering and financing farming, post high school education, farming aspirations of those not in farming, and an evaluation of vocational agriculture by the graduates.

Findings.—A compilation of the data showed the following occupational status: Farming and ranching, 30.5 percent; farm labor, 7.1 percent; agriculturally related, 12.1 percent; nonagricultural, 31.9 percent; military service, 10.6 percent and college students, 7.8 percent. Sixty-five percent of the respondents indicated that vocational agriculture had at least a little influence on their selection of an occupation.

An interpretation of data regarding methods of entering farming showed clearly that most men do so with assistance from their parents or other relatives. Forty-two of those not already in farming indicated they definitely would like to enter farming if they had the opportunity.

Sixty-seven respondents found their studies in vocational agriculture of definite value in their work. Thirty-one said that it was of some value. Six indicated little or no value.

Areas in which more study was desired included the following in descending order: Farm mechanics, farm management, economics, crop production, livestock, soils and soil conservation.

The recommendations to be made from this study include: (1) The importance of vocational agriculture in preparing men for related occupations should be emphasized. (2) Also the importance of vocational agriculture as a guidance medium should be recognized. (3) Boys should be made aware of the problems associated with entrance into farming and be informed of the other agricultural opportunities.

3104. Wyatt, Windol Lee. Occupational Status of Former "Chapter" and "State Farmers" in the Iowa Association, Future Farmers of America. Thesis, M.S., 1961, Iowa State University of Science and Technology. 115 p. Library, Iowa State University of Science and Technology, Ames.

Purpose.—The purpose of this study was twofold: (1) To determine the relationship, if any, of the degree received and the occupational status of the former Chapter and State Farmers; and (2) to attempt to determine if the method of selection of State Farmers was in line with the aims and purposes of vocational agriculture and the Future Farmers of America.

Method.—State Farmers were selected by random sampling from the list of State Farmer recipients from 1929 to 1953 inclusive. Five State Farmers were selected for each year included in this sample. Five alternates were also selected by the same method for each year. Chapter Farmer classmates were paired with each of the State Farmers selected for the study. For this study 100 State Farmers were paired with 100 Chapter Farmers classmates, from the same schools, and that graduated the same time.

Findings.—Significant differences existed in that the State Farmers had more years of training in vocational agriculture and had participated more years in Future Farmers of America activities. Seventy percent of the Chapter Farmers were the sons of farmowners. Farm ownership by the parents was not a significant influence in the attainment of the State Farmer degree. Seventy-two percent of the State Farmers and 52 percent of the Chapter Farmers were the sons of parents who farmed 161 acres or more. The data indicated that the State Farmer recipients had greater resources of land available than did their Chapter Farmer classmates.

State Farmers had a smaller number of older brothers, a smaller number of younger brothers, and a smaller number of sisters than did the Chapter Farmers. The differences were not great enough to be significant.

More than three times as many (52 State Farmers and 15 Chapter Farmers) State Farmers continued their formal education beyond high school, than had the Chapter Farmers. Seventy-one percent of the State Farmers and 33 percent of the Chapter Farmers had attended agricultural colleges. Of the two groups that attended college 68.65 percent were engaged in farming or in a related agricultural occupation.

Fifty-seven percent of the 37 State Farmers who attended an agricultural college were engaged in farming, whereas, 60 percent of the 5 Chapter Farmers who had attended agricultural colleges were engaged in farming. Eight of the 19 agricultural college graduates, or 42.1 percent, were farming. Forty-four percent of the members who attended nonagricultural colleges were engaed in agricultural occupations, as compared to 83.3 percent of the members who attended agricultural colleges were engaged in agricultural occupations.

The value of the former members' training in vocational agriculture and the experiences in FFA was expressed higher by the State Farmers than the Chapter Farmers, even if the State Farmers were not farming. No significant differences existed as to the age at which the former members were married. Ten of the former State Farmers achieved a commissioned rank in service while only two Chapter Farmers did likewise. More former Chapter Farmers received on-the-job training while more State Farmers attended college.

Seventy-five percent of the former State Farmers and 72 percent of the former Chapter Farmers were engaged in agricultural occupations. Fifty-seven percent of the former State Farmers and 65 percent of the former Chapter Farmers were farming. Former State Farmers, who were the sons of landowners, choose agricultural occupations more frequently than did the former Chapter Farmers, who were the sons of landowners.

Twenty percent of former Chapter Farmers and 45 percent of the former State Farmers, who were farming, were from farms where the parents farmed 241 acres or more.

Eight percent of the former Chapter Farmers and 27.66 percent of the former State Farmers reported an income, for 1953-1955 average, of $8,000 and up. In the $10,000 and up income status classification there were 14.9 percent of the former State Farmers and 4.25 percent of the former Chapter Farmers.

Nine percent of the Chapter Farmers and 22 percent of the State Farmers who were farming were earning $8,000 or more. Former State Farmers were in the higher income brackets of the three occupational classifications of "farming," "nonfarm argicultural" and "nonagricultural." The average yearly income of all the former Chapter Farmers in this study was $3,836.06, whereas the average for the former State Farmers was $4,613.34.

The data indicated that the former State Farmers were more stable in their occupational choices, in all classifications, than were the former Chapter Farmer classmates.

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